

CONPROSYS

Reference Manual

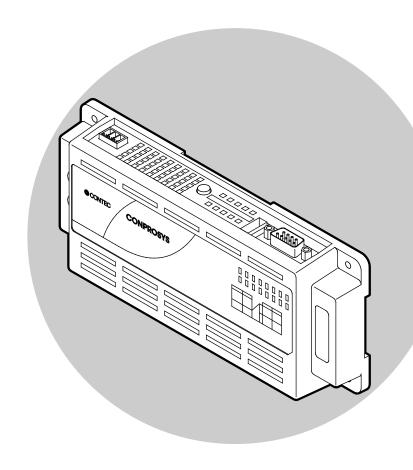
(Software)

M2M Controller Series

Integrated type

Firmware version 3.0.0 or later

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Introduction

This section provides necessary information of the product such as the product configuration and manuals before actual use.

1. Manual Composition

This manual is composed as follows:

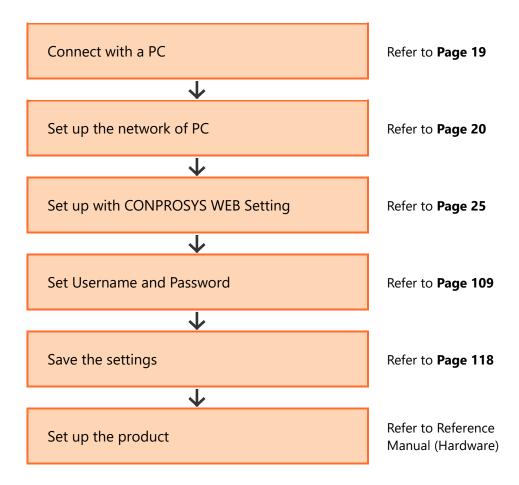
Index

inis manuai is composed as follows:	
Chapters ▼	Descriptions ▼
Introduction	Manuals on the product are introduced. Read them as required.
Safety Precautions	······ Safety precautions are listed.
Set the Computer Network	This chapter describes the network settings with PC before using the product.
CONPROSYS WEB Setting	CONPROSYS WEB Setting This chapter describes the function settings in the CONPROSYS WEB Setting.
Easy Data Process and Control	······· CONPROSYS VTC
	Collecting data or calculation can be done easily via web browser.
Monitoring Edit	······ CONPROSYS HMI
	Create a monitoring page and the performances, errors, operations, or standstill can be checked.
Tag Edit	········ Tag Edit page
	This section describes Tag Edit page. With this function, monitoring TAG/STAG/LTAG/LSTAG, editing their initial values, and TAG import/export in CSV format file can be executed.
Transferring Measured Data to Server	
Using the product as OPC UA Sever	l
Set the Auto Send Mail	
Connecting to Azure IoT Hub	Detailed settings for each function
MTConnect	Detailed settings for each function in the CONPROSYS WEB Setting are described.
FTP communication	I
MQTT Publish and Subscribe	I
Router Function	
Connecting to FacilityView	J
Set Up Troubleshooting	This chapter describes troubleshooting when the product does not function properly.
Appendix	The specification of the data format and others are listed.
Customer Support and Inquiry	Services and inquiry.

..... Index of the manual.

2. Procedure Until Ready To Use

The following chart shows the standard procedure until the product is ready to use.



^{*}This procedure can be different depending on the user's environment or system types.

3. 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	When to Read	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)

♦ Read The Following Manuals As Necessary.

Name	When to Read	Contents	How to Get
CONPROSYS Cloud Data Service 2(CDS2) Manual	Read this to understand the outline of the CONPROSYS Cloud Data Service 2.	This describes the outline and specification of the CONPROSYS Cloud Data Service 2 as well as how to operate the product.	Download from the Contec website (PDF)
CONPROSYS Cloud Data Service 2 Concise Manual	Read this when using the CONPROSYS Cloud Data Service 2.	This describes the procedure to start monitoring measured data in Cloud Data Service 2.	Download from the Contec website (PDF)
SIM Card Manual (For the CPS-MC341G-ADSC1- 111 model)	Read this when using the product with SIM card.	This describes the procedure to start sending data to Cloud server from M2M controller.	Download from the Contec website (PDF)

♦ Download Manuals

Download the manuals from the following URL.

Download

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

4. Online Help

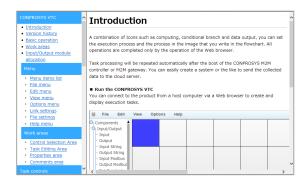
We offer the detailed information on "CONPROSYS VTC" for assembling processing tasks such as calculation and control as well as on "CONPROSYS HMI" for operating and editing the monitoring screen through the Online Help.

Consult the Online Help as necessary.

◆ CONPROSYS VTC (Visual Task Control).

Online Help

https://doc.conprosys.com/help/task/V1/en/



◆ CONPROSYS HMI (Human Machine Interface)

Online Help

https://doc.conprosys.com/help/task/V1/en/



5. Check the Firmware Version

Before running the product, visit our website to check the firmware version and update to the latest one if necessary.

Updating firmware to the latest version will resolve troubles and stabilize the operation.

Download https://www.contec.com/download/

* Refer to the "Firmware Update (page 107)" for further details.

Safety Precautions

Understand the following definitions and precautions to use the product safely. Never fail to read them before using the product.

1. Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources.

Understand the meanings of these labels to operate the equipment safely.

△DANGER	Signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.
△WARNING	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.
△ CAUTION	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

2. Handling Precautions

A CAUTION

- The specifications of the product are subject to change without notice for enhancement and quality improvement. Even when using the product continuously, be sure to read the manual in the CONTEC's website and understand the contents.
- Do not modify the software.
 CONTEC will bear no responsibility for any problems, etc., resulting from modifying the software.
- Regardless of the foregoing statement, CONTEC assumes no responsibility for any errors that
 may appear in this document or for results obtained by the user as a result of using the
 software.

3. Security Warning

When connecting to the network, be aware of security-related problems. See the examples of Security measures below and set up the product properly along with the network devices.

1. Information Security Risks

- Unauthorized access from the outside through a network could cause the system halt, data damage, or exposure to malware. *1
- Invaded and used as a stepping stone, a device might attack the others through networks. (a victim becomes an assailant)
- Information might leak without realizing due to the connection to the network.
- Secondary damages such as harmful rumors, liability in damages, social credibility fall, and opportunity loss are expected led by the troubles described above.
- *1: Malware (Malicious Software) is software that brings harm to a computer system and performs unintended operations.

2. Security Measures – e.g.

- Do not keep using the default password. (Refer to the product manual for the password setting).
- Set a strong password.
 - Combined with upper and lowercase letters, and numbers so that it cannot be easily analogized by others.
- Change the password periodically.
- Disable unnecessary network services and functions.
- Restrict access to the network with network devices. *2
- Restrict ports to be released on the network with network devices. *2
- Create a closed network connection using such as dedicated network or VPN*3
- *2: Inquire for setting procedure to manufacturers.
- *3: VPN (Virtual Private Network) a secured network that wards off unauthorized access by protecting the communication path with authentication and encryption.

Unfortunately, there are no perfect ways to avert unauthorized access or close a security hole that are endlessly found day and night.

Please understand that risks are always involved with the Internet connection, and we strongly recommend a user should constantly update information security measures.

Set the Computer Network

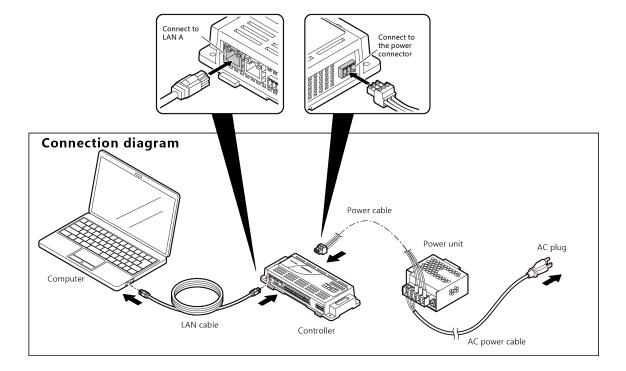
This section describes how to connect the product with a PC, set the network, and check the communication.

1. Connect With a PC

To set the product, you need to first set up the network between the PC and the product in order to establish communication.

First, connect the product with the PC.

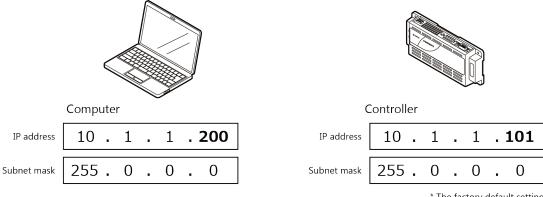
- 1 Follow the instructions below to connect the computer, the controller, and the power unit.
- * Refer to "**Reference Manual (Hardware)**" for how to create a power cable.



- **2** Connect the power unit with AC plug, then turn on the computer.
 - * After connecting the power unit with AC plug, it takes a few minutes for the controller to complete the start-up. (approx. 1-2 min)

2.Set the Computer Network

Follow the "Computer Network Setting Procedure" described below and set the network to make the IP addresses as shown.



* The factory default setting

The product must set a unique IP address for the bold part (**200** or **101**) that is not used by other devices on your network.

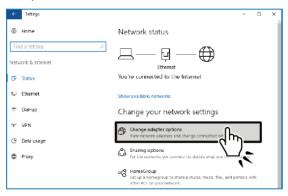
* If proxy is set to your PC, do not use the proxy.

1. Computer Network Setting Procedure (for Windows 10)

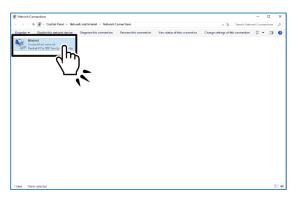
1 Click the [Network & Internet] on [Windows Settings] screen.



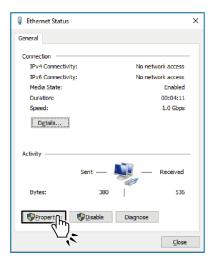
2 Click the [Change adapter options] in [Network status].



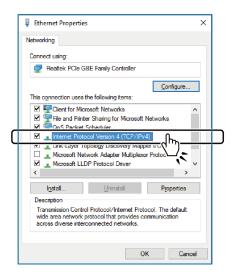
3 Double-click the appeared [Ethernet]



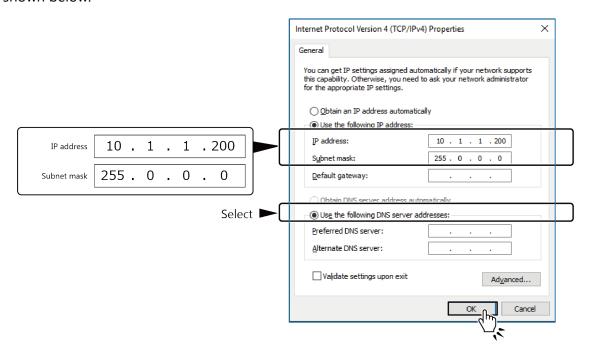
4 Click the [Property] in [Ethernet Status] dialog box.



5 Double-click the [Internet protocol version 4(TCP/IPv4)] in [Ethernet Properties] dialog box.



6 In the [Internet protocol version 4 (TCP/IPv4) property], set IP address and Subnet mask as shown below.

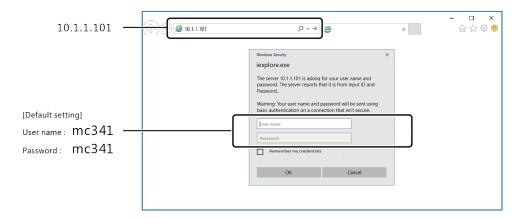


7 Click the $[OK] \rightarrow$ the $[OK] \rightarrow$ the [Close] to close the dialog box and complete the network setting.

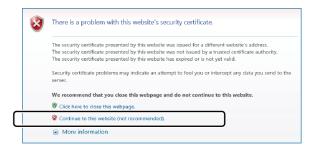
3. Check Communication

1 Start the Internet Explorer 11 on your computer. Enter IP address (10.1.1.101) of the controller in the address bar, then press [Enter] key.

The dialog box asking for the User name and Password appears, enter them and click the [OK].



- * Refer to "Compatible Web Browser (page 25)" for details of compatible web browser.
- * For an actual operation, change User name and Password in [User name and Password] from the Maintenance menu.
- * After entering IP address and pressing [Enter] key, the "Security certificate" might appear on the screen. Choose "Continue to this website".



If [Status menu] of Web browser menu appears, it indicates the success of the communication between the computer and the controller.



CONPROSYS WEB Setting

This section describes the product system and functions.

1.CONPROSYS WEB Setting Outline

The functions of the product can be set easily with the "CONPROSYS WEB Setting" through a browser.

1. Compatible Web Browser

CONPROSYS WEB Setting is compatible with the following browsers.

Compatible Web browser	Supported Version
Microsoft Internet Explorer	Ver. 11 or a later version
Google Chrome	Ver. 52 or a later version
Mozilla Firefox	Ver. 55 or a later version

* Problems may arise due to the use of incompatible browser. Be sure to use the web browser that is compatible.

2. Start Up CONPROSYS WEB Setting

Start the Web browser on your computer that is connected with the controller. Enter IP address (10.1.1.101) of the controller in the address bar, then press [Enter] key.

The dialog box asking for the User name and Password appears, enter them and click the [OK].

* Refer to "**Setup Manual**" for how to connect the controller with your computer.

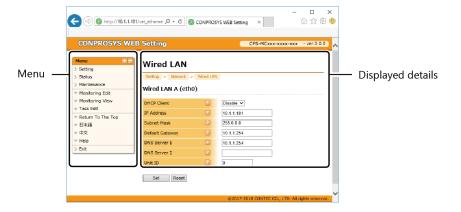


* After entering IP address and pressing [Enter] key, the "Security certificate" might appear on the screen. Choose "Continue to this website "then.

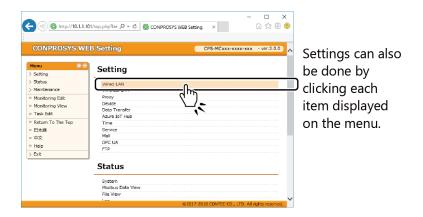
3. CONPROSYS WEB Setting Basic Operation

◆ CONPROSYS WEB Setting Page Structure

Click the menu item on the left side of the screen. This opens a page to set the details of the menu on the right side of the screen.

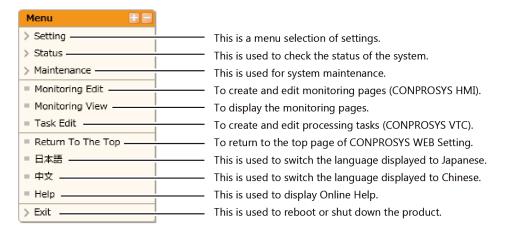


Settings can also be done by clicking each item displayed on the menu.

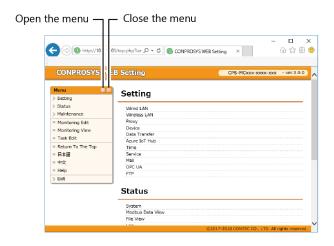


◆ Menu Composition

The menu is composed as follows:



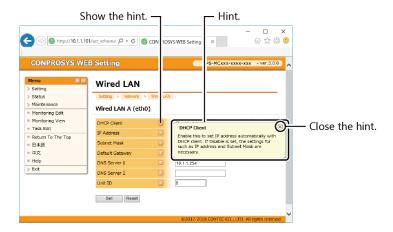
Click the [+] on the "Menu" to open a selection and display all the menus. Click the [-] to close the menus.



◆ Displayed Details

Click the [?] to see a setting hint on the displayed details.

Click the [X] shown on the up-right to close the hint.



2. Menu Function List

Menu Functions are listed below.

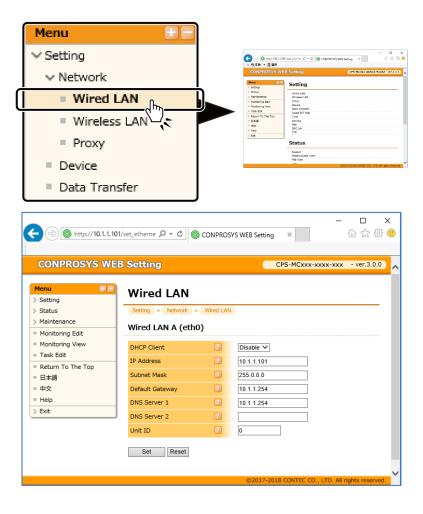
Menu item name	Function	Description
Setting		
Network		
Wired LAN	Set up the network such as "IP address".	Page 30
Wireless LAN	Set up the wireless LAN setting such as "IP address".	Page 32
3G	Set up 3G communication.	Page 35
Proxy	Set up the proxy server	Page 38
Router Function	Set up router function.	Page 39
IP Filter	Set up IP filter.	Page 46
Device	Select the function of digital input, counter input, or serial communication.	Page 49
Data transfer	Set up the destination of the measured data to be transferred.	Page 53
Azure IoT Hub	Set up Azure IoT Hub for the device.	Page 58
Time	Set up the name of NTP server that obtains the time and date.	Page 59
Service	Enable or disable the specified service to be operated in the product.	Page 61
Mail	Set up SMTP server to send a mail.	Page 64
OPC UA Server		
Setting	Set up OPC UA server.	Page 69
Certificate	Download, issue and upload application instance certificates.	Page 71
MT Connect	Set up MTConnect.	Page 73
FTP	Set up FTP.	Page 74
MQTT	Set up FTP.	
Connection	Set up communication with MQTT-Broker.	Page 77
Publish	Set up MQTT Publish.	Page 82
Subscribe	Set up MQTT Subscribe.	Page 89
FacilityView		
Connection	Set up communication with FacilityView.	Page 94
Transfer	Set up FacilityView Transfer.	Page 95
Status		
System	Display the product information.	Page 94
Modbus Data View	Display each register value of Modbus.	Page 100

Menu item name **Function** Description File View Display collected data. Page 104 Display collected communication log. Log Page 106 Maintenance Firmware Update Update the firmware. Page 107 Backup and restore the configuration file. Configuration File Page 108 User/ Password Set a user name and a password when logging in the Page 109 product through a Web browser. **Network Test** Network reachability can be checked with ping command. Page 112 Select Permit or Prohibit for the functions. User's Restrictions Page 113 Certificate Download, issue, and upload certificates. Page 114 Monitoring Edit Display the monitoring edit page (CONPROSYS HMI). Page 113 Monitoring View Display the monitoring page (CONPROSYS HMI) Page 116 Task View Display the task program edit page (CONPROSYS VTC). Page 117 Page 118 Tag Edit Display the edit page of tag value and a comment. Exit Save and Reboot Save the settings and reboot the product. Page 119 Save and Shut down Save the settings and shut down the product. Page 119 Save Page 119 Save the settings. Reboot Reboot the product. Page 120 Shut down Shut down the product. Page 120 Forced Reboot Forcibly reboot the product without terminating the running Page 120 process. Repair SD and Reboot Repair the SD card and reboot the product. Page 121

3. Function Details

1. Wired LAN

Set up wired LAN.



◆ DHCP Client

Select how to set IP address.

[Enable]: Get IP address automatically with DHCP client.

[Disable]: Set up IP address and Subnet mask and so on.

[Setting]: Disable, Enable

[Default]: Disable

♦ IP Address

Set up IP address.

This is enabled when [Disable] is set for DHCP client.

[Setting]: IP address [Default]: 10.1.1.101

♦ Subnet Mask

Set up Subnet mask.

This is enabled when [Disable] is set for DHCP client.

[Setting]: Subnet Mask [Default]: 255.0.0.0

◆ Default Gateway

Set up IP address of default gateway.

This is enabled when [Disable] is set for DHCP client.

Leave it blank when this is not set.

[Setting]: IP address [Default]: No settings

♦ DNS Server

Set up IP address of DNS server.

This is enabled when [Disable] is set for DHCP client.

Leave it blank when this is not set.

[Setting]: IP address [Default]: No settings

♦ Unit ID

Set up unit ID to be used in F&eIT protocol.

Unit ID is fixed to 0 when F&eIT protocol is not used.

[Setting]: 0 - 254 (numeric values)

[Default]: 0

2. Wireless LAN

Set up wireless LAN.

Wi-Fi function can be added with a USB wireless LAN adapter to a USB port.

- * Wireless LAN function is unavailable for the models without a USB port (CPS-MC341-DS1-111, CPS-MC341-DS2-911, and CPS-MC341-A1-111).
- * Refer to "Compatible USB wireless LAN adapter (page 196)" regarding a compatible USB wireless LAN adapter.



♦ DHCP Client

Select how to set IP address.

[Enable]: Get IP address automatically with DHCP client.

[Disable]: Set up IP address and Subnet mask and so on.

[Setting]: Enable, Disable

[Default]: Enable

◆ IP Address

Set up IP address.

This is enabled when [Disable] is set for DHCP client.

[Setting]: IP address [Default]: No settings

♦ Subnet Mask

Set up Subnet mask.

This is enabled when [Disable] is set for DHCP client.

[Setting]: Subnet Mask [Default]: No settings

◆ Default Gateway

Set up IP address of default gateway.

This is enabled when [Disable] is set for DHCP client.

Leave it blank when this is not set.

[Setting]: IP address [Default]: No settings

DNS Server

Set up IP address of DNS server.

This is enabled when [Disable] is set for DHCP client.

Leave it blank when this is not set.

[Setting]: IP address [Default]: No settings

♦ Unit ID

Set up unit ID to be used in F&eIT protocol.

Unit id is fixed to 0 when F&eIT protocol is not used.

[Setting]: 0 - 254 (numeric values)

[Default]: 0

♦ ESSID

Set up ESSID.

Scan access point in the area and when AP exists, [←] button is displayed. Press the button to show the ESSID list. Specify ESSID from the list and it is entered automatically in the form.

[Setting]: 2 to 32 letters of alphanumeric letters, "_", and "-".

[Default]: No settings

♦ Cipher

Select a cipher from the drop-down list.

[Setting]: NONE, WEP, WPA-PSK(AES), WPA-PSK(TKIP), WPA2-PSK(AES), WPA2-PSK(TKIP),

WPA/WPA2-PSK(AUTO)

[Default]: Disable

Encryption Key

Enter an encryption key when using a cipher.

[Setting]: WEP (128bit) 26 digits in hex.

WPA type cipher.....8 to 63 letters of alphanumeric letters, "_", and "-",

or 64 digits in hex.

[Default]: No settings

♦ Alive Monitoring

Executes a ping at specified cycle to target address. When the ping fails, access points are scanned.

[Setting]: Disable, Enable

[Default]: Disable

◆ Target address

Enter the target address (IP address or domain name).

[Default]: No settings

♦ Cycle (min)

The cycle to execute a ping can be selected from 1 to 60 minutes.

[Setting]: 1, 5, 10, 30, 60

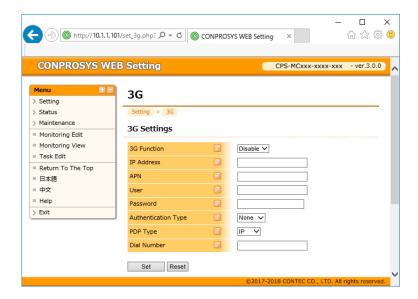
[Default]: 5

3. 3G

Set up 3G communication.

With your SIM card, enter the necessary information.

* This function is only available for the 3G support model CPS-MC341G-ADSC1-111, CPS-MC341G-ADSC1-110.



♦ 3G Network

Enable this when using 3G network.

[Setting]: Disable, Enable

[Default]: Disable

♦ IP Address

Enter settings when specifying PDP address.

[Setting]: IP Address

[Default]: 0.0.0.0

◆ APN

Set APN for 3G connection specified by the 3G service provider.

[Setting]: Domain name

[Default]: No settings

♦ User

Set a user name for 3G connection specified by the 3G service provider.

[Setting]: 0 to 32 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [.] period, and [@] at sign.

[Default]: No settings

Password

Set a password for 3G connection specified by the 3G service provider.

[Setting]: 0 to 30 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

[Default]: No settings

◆ Authentication Type

Select an authentication type from [None], [PAP], or [CHAP] for 3G connection specified by the 3G service provider.

[Setting]: None, PAP, or CHAP

[Default]: None

PDP Type

Select PDP type either "IP" or "PPP" for 3G connection specified by the 3G service provider.

[Setting]: IP, PPP [Default]: PPP

Dial Number

Enter the dial number for 3G connection specified by the 3G service provider.

"*99***#1" is used if it left blank.

[Setting]: 0 to 16 letters of one-byte alphanumeric character, [#] sharp mark, and [*] asterisk mark.

[Default]: No settings

PIN Code

Enter the PIN code if the SIM card is locked.

[Setting]: 4- to 8-digit number

[Default]: No settings

♦ Alive Monitoring

Execute a ping at the specified cycle to target address. When the ping fails, 3G restarts.

[Setting]: Enable, Disable

[Default]: Disable

♦ Target Address

Enter the target address (IP address or domain name).

[Default]: No settings

◆ Cycle (min)

The cycle to execute a ping can be selected from 5 to 60 minutes.

[Setting]: 5, 10, 30, 60

[Default]: 5

PIN Unlock Code

If "+CPIN: PUK" is displayed under [Status] -> [Log] -> [3G AT command log], the PIN is locked and the PIN unlock code (PUK) must be entered. (This will be necessary if the PIN code is entered incorrectly three times.)

Note that, for some SIM cards, entering the PUK incorrectly 10 times may cause the SIM card to become irreversibly locked.

[Setting]: 8-digit number

[Default]: No settings

♦ New PIN Code

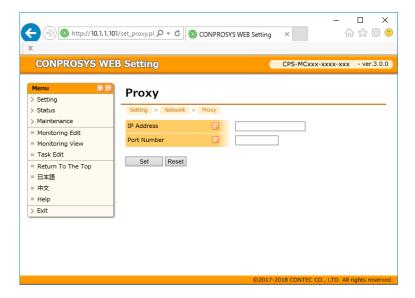
Enter a PIN code to set as the new PIN code.

If "OK" is displayed after pressing the "Execute" button, the PIN lock will be released and the new PIN code will be set.

[Setting]: 4- to 8-digit number

4. Proxy

Set up IP address and port number of Proxy server.



♦ IP Address

Set up Proxy server IP address.

When the proxy server is not used for data transfer, leave it blank.

When transferring data via proxy, set both of IP address and a port number.

[Setting]: IP address [Default]: No settings

♦ Port Number

Set up Proxy server port number.

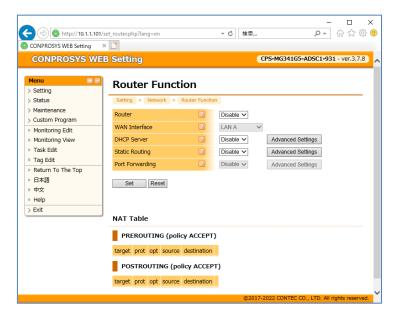
When the proxy server is not used for data transfer, leave it blank.

When transferring data via proxy, set both of IP address and a port number.

[Setting]: 0 - 65535 (numeric values)

5. Router Function

Set up router function.



♦ Router

Enable this when using the router function.

[Setting]: Disable, Enable

[Default]: Disable

♦ WAN Interface

Specify WAN interface when using the router function.

[Setting]: LAN A、3G、Wireless LAN

[Default]: LAN A

♦ DHCP Server

Enable this when using DHCP server.

Click the [Advanced Settings] button and set the details of DHCP server.

[Setting]: Disable, Enable

[Default]: Disable

♦ Static Routing

Enable this when using the static routing.

Click the [Advanced Settings] button and set the details of the static routing.

[Setting]: Disable, Enable

[Default]: Disable

◆ Port Forwarding

This can be enabled and set when the router function is enabled.

Enable this when using the port forwarding.

Click the [Advanced Settings] button and set the details of the port forwarding.

[Setting]: Disable, Enable

[Default]: Disable

◆ Advanced Settings – DHCP Server

Set up DHCP server.

Click the [Advanced Settings] button to display the detailed items regarding the "DHCP Server".



LAN Interface

Specify LAN interface that allocates DHCP.

[Setting]: LAN A [Default]: LAN A

Allocation Starting Address

Specify the starting address that allocates DHCP.

[Setting]: IP address [Default]: No settings

Allocation Ending Address

Specify the ending address that allocates DHCP.

[Setting]: IP address [Default]: No settings

◆ Advanced Settings – Static Routing

Set up static routing.

Click the [Advanced Settings] button to display the settings list screen.



Click the [Add] button to add a setting to "Static Routing". Up to 32 settings are possible.



Destination IP Address

Specify the destination IP address of the static routing.

[Setting]: IP address [Default]: No settings

Gateway

Specify the gateway address of the static routing.

[Setting]: IP address [Default]: No settings

Netmask

Specify the netmask of the static routing.

[Setting]: Subnet Mask [Default]: No settings

Interface

Specify the interface of the static routing.

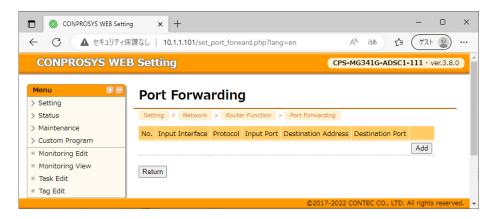
[Setting]: LAN A、3G、Wireless LAN

[Default]: LAN A

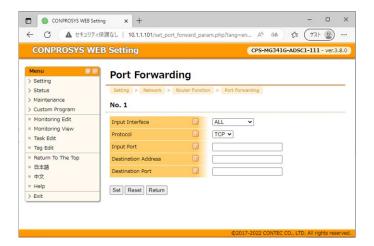
♦ Advanced Settings – Port Forwarding

Set up port forwarding.

Click the [Advanced Settings] button to display the settings list screen



Click the [Add] button to add a setting to "Port Forwarding". Up to 32 settings are possible.



Input Interface

Specify the input interface for forwarding.

[Setting]: LAN A、3G、Wireless LAN、ALL

[Default]: ALL

Protocol

Select the target protocol.

[Setting]: TCP, UDP

[Default]: TCP

Input Port

Specify the input port for forwarding.

[Setting]: 0-65535 (numerical value)

[Default]: No settings

Destination Address

Specify the destination IP address for forwarding.

[Setting]: IP address [Default]: No settings

Destination Port

Specify the destination port for forwarding.

[Setting]: IP address [Default]: No settings

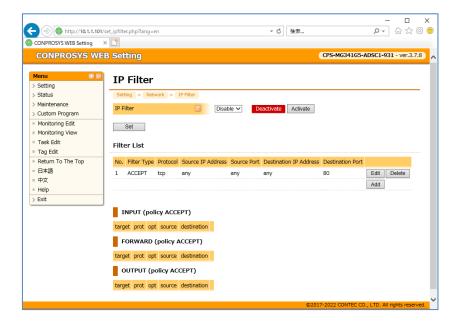
6. IP Filter

Set up IP Filter. When the setting is enabled, input packets except the following are dropped.

- DHCP service
- DNS service
- NTP service
- Packets accepted by rules added to the filter list

XAII output packets are accepted.

The Web page connection permission setting is registered as the default value.



◆ IP Filter

With IP filter is activated and to boot the product, enable this.

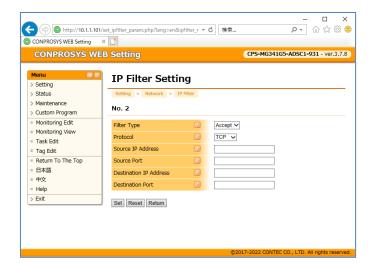
The IP filter can be activate or deactivate by clicking the [Activate] or the [Deactivate] buttons.

[Setting]: Disable, Enable

[Default]: Disable

Click the [Add] button to add a setting to "IP Filter List".

Up to 64 settings are possible.



◆ Filter Type

Specify the filter type.

[Setting]: Accept, Drop

[Default]: Accept

♦ Protocol

Specify the protocol from TCP / UDP / ICMP / ALL.

[Setting]: TCP、UDP、ICMP、ALL

[Default]: TCP

♦ Source IP Address

Specify the source IP address to apply filter. If not specified, all IP addresses are applied.

[Setting]: IP address [Default]: No settings

♦ Source Port

Specify the source port to apply filter. If not specified, all ports are applied.

[Setting]: 0-65535 (numerical value)

[Default]: No settings

♦ Destination IP Address

Specify the destination IP address to apply filter. If not specified, all IP addresses are applied.

[Setting]: IP address [Default]: No settings

◆ Destination Port

Specify the destination port to apply filter. If not specified, all ports are applied.

[Setting]: 0-65535 (numerical value)

7. Device

Set up digital input, counter input, analog input, and serial communication.



Digital Input Signal

Input functions can be switched in the digital input signal on the display.

The signals whose functions are limited by this setting will be hidden from OPC UA, CONPROSYS VTC, and CONPROSYS HMI.

With CPS-MC341-ADSC-***, digital input 0 and counter 0, digital input 1 and counter 1, share the same terminals.

With CPS-MC341-ADSC-931, an external power supply or a built-in power supply can be chosen as the power supply for digital input.

♦ Digital Input Power

The digital input power type can be chosen from built-in power or external power.

[Setting]: Built-in power, external power

[Default]: Built-in power

Digital Filter

Preventing wrong recognition of input signals from being affected by noise or chattering. The digital filter checks the input signal level during the sampling time of 1/4 cycles of digital filter setting time. When the signal level remains the same for the digital filter setting time (four-time sampling), the digital filter recognizes that signal as the normal input signal.

[Setting]: Filter function unused, 0.25µsec - 131.072msec

[Default]: Filter function unused

◆ DI/CNT2, DI/CNT3

Digital input and counter input functions can be switched.

Digital input and counter share the same terminals.

[Setting]: Digital input, counter input, or digital input and counter input.

[Default]: Digital input and counter input

Analog Input Signal

Set up analog input signals.

The contents of this setting can be applied to all the functions that use analog input signals.

Analog Input Signal Channel 1 Sampling count 2 Measurement value(0 - 4095) Data type ~ Minimum value[mA] 0 20 Maximum value[mA] Minimum value of industrial 2 -32768 value conversion 2 Maximum value of industrial 32767

♦ Sampling Count

value conversion

The average of the analog input values sampled for the specified number of times is used.

Data Type

Decide whether the measurement value or the industrial value conversion to be used.

When the measurement value is selected, the analog input value will be the one obtained in the range of the resolution (unit: LSB).

When the industrial value conversion is selected, the value will be the converted one set in the Minimum/Maximum value and the Minimum/Maximum value of industrial value conversion.

CPS-MC341-ADCS1-***

[Setting]: [Measurement value (0 to 4095)], [Industrial value conversion (-32768 to +32767)]

[Default]: [Measurement value (0 to 4095)]

CPS-MC341-A1-***

[Setting]: [Measurement value (0 to 65535)], [Industrial value conversion (-32768 to +32767)]

[Default]: [Measurement value (0 to 65535)

◆ Minimum Value - Maximum Value

Set the minimum value and the maximum value of inputs for the industrial value conversion.

(Unit: 1V or 1mA)

Set the values from the range specified in analog inputs.

You cannot set the minimum value that is bigger than the maximum value.

CPS-MC341-ADCS1-***

[Setting]: 0mA - 20mA

[Default]: Minimum Value = 0mA, Maximum Value = 20mA

CPS-MC341-A1-***

[Setting]: -10V to +10V

[Default]: Minimum Value =-10V, Maximum Value =10V

Minimum Value of Industrial Value Conversion Maximum value of Industrial Value Conversion

Set the minimum value and the maximum value for the industrial value conversion.

The value obtained by converting the analog input value of the minimum value - the maximum value into the minimum value of industrial value conversion - the maximum value of industrial value conversion is used.

If the analog input value is less than the minimum value, the value set in the minimum value is used. If the analog input value is bigger than the maximum value, the value set in the maximum value is used.

[Setting]: -32768 to +32767

[Default]: Minimum Value =-32768, Maximum Value =32767

♦ Serial Communication

This function is available with CPS-MC341-ADSC-931 alone.

Set up COM B of serial communication port to be used either for a task script or FANUC CNC.

[For a task script]: set the serial communication on the task edit screen.

◆ COM B

Decide whether COM B of serial communication port to be used for a task script or for FANUC CNC.

[Setting]: for a task script or FANUC CNC

[Default]: for a task script

BaudRate

Select baud rate when COM B is used for FANUC CNC.

[Setting]: 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 9600, 19200, 38400, 57600,

115200, 230400, 921600

[Default]: 115200

Data Bit

Select data bit when COM B is used for FANUC CNC.

[Setting]: 5, 6, 7, 8 [Default]: 8-bit

♦ Parity Bit

Select parity bit when COM B is used for FANUC CNC.

[Setting]: None, Even, Odd

[Default]: None

♦ Stop Bit

Select stop bit when COM B is used for FANUC CNC.

[Setting]: 1 bit, 2-bit

[Default]: 2-bit

♦ Flow Control

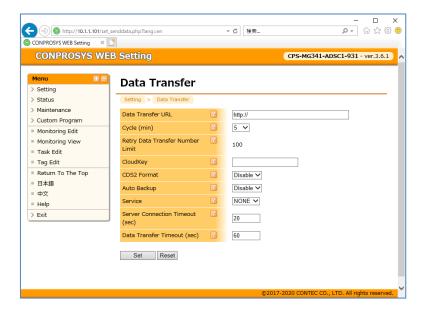
Select flow control when COM B is used for FANUC CNC.

[Setting]: Software, Hardware, None

[Default]: Software

8. Data Transfer

Set up the definition to measure data and the server to send data.



◆ Data Transfer URL

Enter URL to transfer data. It is used for data transfer service as well as for cloud transfer from CONPROSYS VTC. If you are sending data to CONTEC cloud service, enter URL in the "Data transfer URL", select CDS2 format "Enable", and click the "set".

* As for Data transfer URL, enter the "Measured data upload URL" that is listed on the mail sent to you after completing CDS2 contract.

[Setting]: URL

[Default]: http:// (No settings)

♦ Cycle (min)

Set up a cycle to transfer data. Setting details are used in data transfer service.

[Setting]: 1, 5, 10, 15, 20, 30, 60

[Default]: 5

Retry Data Transfer Number Limit

The maximum number of files that can be transferred simultaneously. It is set automatically according to data transfer cycle (min).

[Setting]: 20 files are the maximum when one minute is set for data transfer cycle. 100 files for other cycles.

[Default]: 100

◆ Cloud Key

Set Cloud Key to identify the required data.

Cloud Key is added to a head column of sending data.

When CDS2 is used for a destination, set the setting according to cloud server.

The CDS2 is the service for Japan domestic only.

[Setting]: 1 to 10 of one-byte alphanumeric character and [_] underline.

[Default]: No settings

CDS2 Format

When CDS2 is used for a destination, select CDS2 format "Enable".

The format of data sent by transfer service is changed.

[Setting]: Disable, Enable

[Default]: Disable

♦ Auto Backup

Backup files are set into the SD card upon transferring data to the data transfer URL.

The files can be downloaded from [File view] in [Status].

[Setting]: Disable, Enable

[Default]: Disable

♦ Service

Select the service to transfer data. For CDS2, select the "NONE".

When CHS is selected and saved, "Data Transfer URL" and "CDS2 format" are dynamically changed.

[Setting]: NONE, CHS

[Default]: NONE

Server Connection Timeout (sec)

Set the timeout period until the system connects to the server.

[Setting]: 10 - 300 (numeric values)

[Default]: 20

◆ Data Transfer Timeout (sec)

Set the timeout period until the data transfer is completed.

[Setting]: 30 - 3600 (numeric values)

[Default]: 60

♦ Service-CHS

Refer to CHS Help regarding the link between CONPROSYS and CHS (CONPROSYS HMI System).

♦ CHS Authentication settings

CHS Authentication settings



Company ID

Enter the company ID which registered in CHS.

[Setting]: 1 to 16 of one-byte alphanumeric character

[Default]: No settings

Project ID

Enter the project ID which registered in CHS.

[Setting]: 1 to 16 of one-byte alphanumeric character

[Default]: No settings

♦ User

Enter the user ID which registered in CHS.

[Setting]: 1 to 40 of one-byte alphanumeric character

Password

Enter the password which registered in CHS.

[Setting]: 1 to 64 of one-byte alphanumeric character, symbols

[Default]: No settings

Register data to be sent / received in CHS

Before registering data in CHS, configure cloud transmission settings in CONPROSYS.

The link to setting page appears if there are no cloud transmission settings.

Register data to be sent / received in CHS Before registering data in CHS, configure cloud transmission settings in CONPROSYS. Send device data of CONPROSYS 1.Service 2.Time MQTT PUBLISH / SUBSCRIBE 1.MQTT Connection 2.MQTT Publish 3.MQTT Subscribe 4.Service 5.Time

The page changes to the authentication button if there are cloud transmission settings.

When authentication succeeds, the list of could transmission settings and the list of CHS registered data will be displayed.

Register data to be sent / received in CHS



♦ Register

Check off the desired cloud key for sending data to CHS. This is not displayed if there are no cloud transmission settings.

♦ Category

This indicates the type of cloud transfer.

The [unknown] will be displayed when data are registered in CHS, however, not set in CONPROSYS.

♦ Cloud key

This indicates the cloud key that has been set. Identical cloud key cannot be used.

♦ Data list

This is the data list to send data to cloud by CONPROSYS.

♦ Data Num

This indicates the number of data to be sent by CONPROSYS.

♦ CHS data list

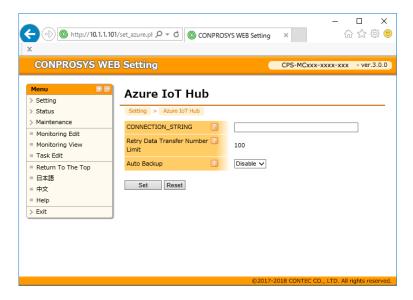
This is the data list that are registered in CHS.

♦ CHS data Num

This indicates the number of data that are registered in CHS.

9. Azure IoT Hub

Set up the details of the device registered in Azure IoT Hub.



◆ CONNECTION_STRING

Enter connection string of the device ID registered in Azure IoT Hub.

[Setting]: 0 - 256 letters of one-byte alphanumeric character and symbols, except [] space,

[CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark,

[¥] JPY mark, or backquote [`].

[Default]: No settings

Retry Data Transfer Number Limit

This is the maximum number of files that can be resent simultaneously. It cannot be changed.

[Setting]: 20 files is the maximum when one minute is set for data transfer cycle. 100 files for other cycles.

[Default]: 100

◆ Auto Backup

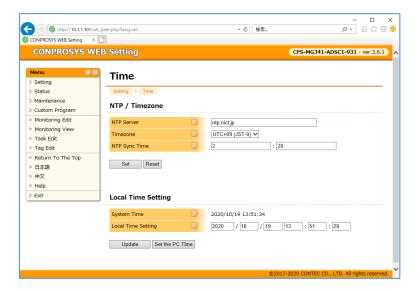
Enable this to create backup files into the SD card upon transferring data to the Azure IoT Hub.

[Setting]: Disable, Enable

[Default]: Disable

10. Time

Set up the name of NTP server that obtains the time and date.



♦ NTP Server

Set the address of NTP server when using NTP.

[Setting]: Domain name or IP address

[Default]: ntp.nict.jp

♦ Time Zone

Select the time zone. Time zone setting is also reflected to the date in the data generated.

[Setting]: UTC-11 - UTC+12 [Default]: UTC+09(JST-9)

♦ NTP Sync Time

Set the time for synchronization using NTP. Synchronization is daily performed at the specified time.

[Setting]: 0:00 - 23:59

[Default]: 2:20

♦ System Time

This displays the current system time.

♦ Local Time Setting

To change the system time, select the time and click "Update".

By clicking "Update", the set time is saved in temporary storage space.

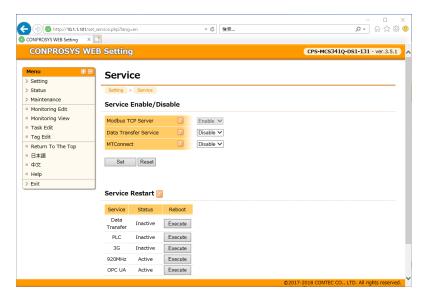
With the product models containing a battery, time can be kept even when the product power is off.

By clicking "Set the PC Time", the PC time is automatically set in the form.

[Setting]: Setting: 1970-01-01 00:00:00 - 2038-1-19-03:14:07

11. Service

Set up services to be operated in the product.



♦ Modbus TCP Sever

Run Modbus TCP sever.

The maximum number of connectable TCPs: 5 Port number: 502

[Setting]: Fixed [Default]: Enable

*Disable is unavailable

♦ Data Transfer Service

Enable this to transfer I/O data of the device to the server at the certain time cycle.

Set the destination of the data to be sent in [Data transfer URL] and the data sending intervals in [Cycle (min)].

The product without a RTC built-in battery starts the service after completing time synchronization with NTP server.

[Setting]: Disable, Enable

[Default]: Disable

♦ MQTT Client

Enable this to communicate with MQTT-Broker.

Set up MQTT "Connection", "Publish", and "Subscribe" in each of the setting page.

For the controller without a built-in RTC battery models, the service starts after completing time synchronization with NTP server.

[Setting]: Disable, Enable

[Default]: Disable

◆ MTConnect

MTConnect is a communication protocol for machine tools.

To stop MTConnect, select Disable and click the [set].

*The MTConnect function is available with CPS-MC341-ADSC1-931 alone.

[Setting]: Disable, Enable

[Default]: Disable

♦ Router Log Function

By enabling, iptables logs are displayed in [Status] → [Log] → [Router log].

[Setting]: Disable, Enable

[Default]: Enable

Select the log you want to retrieve.

[Setting]: Dropped packets only, All logs

[Default]: Dropped packets only

♦ FacilityView

Enable this to communicate with FacilityView.

Set up FacilityView "Connection" and "Transfer" in each of the setting page.

[Setting]: Disable, Enable

[Default]: Disable

♦ Web Server

Select the communication method that the web server allows.

[Setting]: HTTP/HTTPS, HTTP, HTTPS

[Default]: HTTP/HTTPS

♦ Service Restart

The Service Restart is available to restart the specified services in the current user settings (WEB Setting).

Use these buttons for function operational checks.

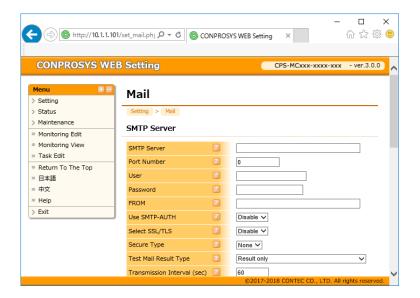
After the settings have been completed, save them to ROM first. Then activate the actual operations.

- * The services that can be updated by executing the service restart.
 - Data Transfer: Data Transfer setting, Time setting
 - PLC: PLC setting
 - 3G:3G setting (except Alive Monitoring setting)
 - 920MHz: 920MHz setting (Basic setting only)
 - OPC UA Server : OPC UA Server setting
 - MQTT: MQTT Connection, Publish, Subscribe settings
 - NTP Time Sync : NTP Sync Time setting
 - Web Server : Web Server setting

12. Mail

Set up SMTP server setting.

Set the setting in accordance with the server to connect.



♦ SMTP Sever

Set up the address of SMTP server to send emails.

[Setting]: Domain name or IP address

[Default]: No settings

♦ Port Number

Enter the port number of SMTP Server.

[Setting]: 0 – 65535 (numeric values)

[Default]: 0

♦ User

Enter the user name of SMTP server.

[Setting]: 0 - 256 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [.] period, and [@] at sign.

♦ Password

Enter the password of SMTP Server.

[Setting]: 0 to 64 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

[Default]: No settings

◆ FROM

Enter the FROM details of the sending mail.

[Setting]: Up to 256 letters.

[Default]: No settings

◆ SMTP-AUTH

Enable this when using SMTP-AUTH in SMTP server.

[Setting]: Disable, Enable

[Default]: Disable

◆ Select SSL/TLS

Select Enable when SMTP server uses secured connection.

[Setting]: Disable, Enable

[Default]: Disable

♦ Secure Type

Select a secure type when SMTP server uses secured connection.

[Setting]: None, SSL, TLS

[Default]: No settings

♦ Test Mail Result Type

Select the type to display the communication details upon sending a test mail.

[Setting]: Results only, a message from CONPROSYS to SMTP server, a message

between CONPROSYS and SMTP server.

[Default]: Results only

◆ Transmission Interval (sec)

When sending fails, the mail is stored in a Resend folder (Mail) and is resent at the specified interval cycle (second).

[Setting]: 0 - 300 (numeric values)

[Default]: 60

◆ Resend Times

When resending fails more the specified times, stored mails are discarded. Mails within the specified resending times are stored in a Resend folder.

[Setting]: 0 - 10 (numeric values)

[Default]: 3

♦ Max Number of Resend Mail File

The maximum number of mails that can be stored in a Resend folder (Mail). When mails exceed the maximum limit, the exceeded mails are discarded instead of resending.

[Setting]: 0 - 300 (numeric values)

[Default]: 300

♦ Test Mail Address

Send a test mail to the specified address.

Click the "Execute" button to send a test mail.

[Setting]: 0 - 256 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [.] period, and [@] at sign.

[Default]: No settings

Mail Address

Up to 10 destinations can be set per address.

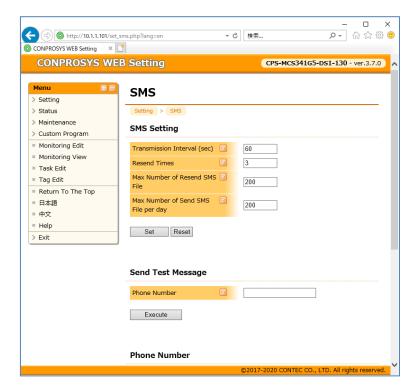
[Setting]: 0 - 256 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [.] period,

and [@] at sign.

13. SMS

Set up SMS.

- * This function is only available with the CPS-MC341G-ADSC1-110 model.
- * Check the "See Confirmed SIM Cards" in the following site for confirmed SIM cards. https://www.contec.com/products-services/daq-control/iiot-conprosys/m2m-controllers/lineup/



♦ Transmission Interval (sec)

When sending a message by SMS fails, the SMS message is stored in a Resend folder (SMS) and is resent at the specified interval (second).

[Setting]: 0 - 300 (numeric values)

[Default]: 60

♦ Resend Times

When resending fails more the specified times, stored SMS messages are discarded.

SMS messages within the specified resending times are stored in a Resend folder.

[Setting]: 0 - 10 (numeric values)

[Default]: 3

♦ Max Number of Resend SMS File

The maximum number of SMS messages that can be stored in a Resend folder (SMS). When the messages exceed the maximum limit, they are discarded instead of resending.

[Setting]: 0 - 200 (numeric values)

[Default]: 200

Max Number of Resend SMS File per day

The maximum number of SMS messages that can be sent per day.

When the messages exceed the maximum limit, they are discarded instead of sending.

When [0] is set, the maximum number will be unlimited.

The number of sending messages is cleared at 0:00 daily.

[Setting]: 0 - 200 (numeric values)

[Default]: 200

Send Test Message

Click the [Execute] button to send a SMS message to the specified phone number.

[Setting]: Phone Number (up to 15 one-byte alphanumeric characters)

[Default]: No settings

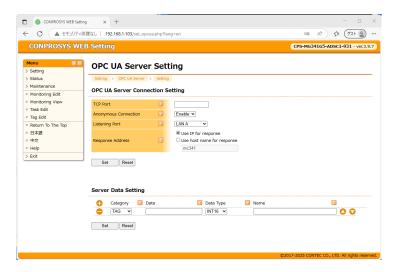
♦ Phone Number

Up to 10 phone numbers for sending SMS messages can be registered.

[Setting]: Phone Number (up to 15 one-byte alphanumeric characters)

14. OPC UA Server Setting

Set up OPC UA server.



◆ TCP Port

The port setting of OPC UA server can be done from TCP Port.

The port number can be set with between 0 and 65535 or empty value.

When the port number is unspecified, the default port 4840 is used.

[Setting]: 0 - 65535 (numeric values)

[Default]: No settings

◆ Anonymous Connection

Enable or disable the anonymous connection to OPC UA server. Execute the saving and rebooting to enable the settings.

[Setting]: Disable, Enable

[Default]: Enable

Listening Port

Specify the port for OPC UA server to listen. When specifying other than "All", access will be available to only selected port. Execute the saving and rebooting to enable the settings.

[Setting]: LAN A, LAN B, 3G, Wireless LAN, ALL

[Default]: LAN A

♦ Response Address

Specify the address expression included in the data to which OPC UA server responds.

[Setting]: Use IP for response, Use host name for response

[Default]: Use IP for response

Specify a host name when using a host name for response.

[Setting]: Domain name [0 to 128 letters of one-byte alphanumeric character, hyphen (-), period (.),

and vertical bar (|)]

[Default]: mc341

Execute the saving and rebooting to enable the settings.

♦ Server Data Setting

The items can be increased or decreased with the "+" and "-" buttons.

Up to 200 items are configurable.

The order of the setting items can be changed by clicking the "▲▼" buttons.

♦ Category

Select the category of data.

[Setting]: TAG, DTAG, STAG

[Default]: TAG

◆ Data

Select the target.

[Setting]: Select from data list. Range of the selected category (TAG: TAG00~TAG499, DTAG:

DTAG00~DTAG499, STAG: STAG00~STAG499)

[Default]: No settings

Data Type

Select the data type.

[Setting]: INT16, UINT16, INT32, UINT32

[Default]: INT16

◆ Name

Set the display name.

[Setting]: 1-32 alphanumeric characters, underline(_) and hyphen(-)

15. OPC UA Server Certificate

Download, issue and upload application instance certificates.



Own Certificate

Displays information about the application instance certificate used by the OPC UA server.

When establishing the session of the OPC UA client, and authentication of the user ID or certificates is carried out, uploading the application instance certificate of the client is required beforehand.

Need to save and reboot to valid the settings.

◆ Create new Application Certificate

Application instance certificates for OPC UA servers can be issued.

Time synchronization must be completed.

The Subject field can be set to any value except CommonName.

The validity period is 10 years (3650 days) from issuance. Clicking the [Issue] button will renew the above Own Certificate. The renewed certificate will become valid after restarting the service or restarting the device after saving the settings.

Country

[Setting]: 2 letters of one-byte alphanumeric character, [.] period, [-] hyphen, [] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: JP

State or Province

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: No settings

Locality

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: Osaka

Organization

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: CONTEC CO.,LTD

Organizational Unit

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: Engineering Division

CommonName

[Default]: CpsUaServer@mc341

♦ Trusted List

To establish a session, an OPC UA client might require the application instance certificate of the server. Need to save and reboot to valid the settings.

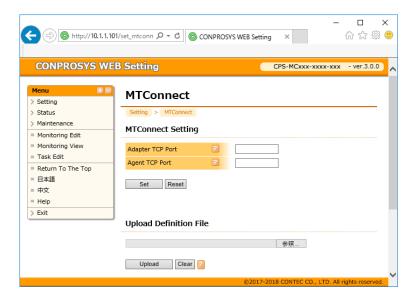
Uploaded certificates can be viewed on the list.

To delete the uploaded certificate, select the certificate from the list and click the [del].

16. MTConnect

This uploads the definition file of MTConnect.

* This function only available with the CPS-MC341-ADSC1-931 model.



◆ Adapter TCP Port

Choose the port number of Adapter

[Setting]: 0 - 65535 (numeric values)

[Default]: 7878

♦ Agent TCP Port

Choose the port number of Agent.

[Setting]: 0 - 65535 (numeric values)

[Default]: 5000

◆ Upload Definition File

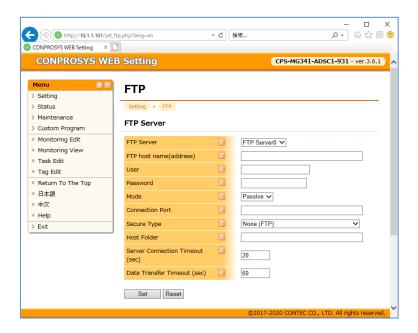
The device definition files used by the agent can be uploaded. (Up to 5 files) "sample.xml" is a sample definition file that is included in the product. You can download the sample.xml, however, it cannot be deleted.

◆ Definition File List

To download the definition file, select the file from the list and click the [Download].

17. FTP

FTP Server setting makes CONPROSYS a client and the product can connect to the FTP server. Files are sent and received by task. For the details, please see "the sample (10) Receive a file from and send it back to FTP server.(page 165)" of the task program.



♦ FTP Server

Select the FTP server from Server 0, Server 1, Server 2, Server 3, or Server 4 for setting.

[Setting]: FTP Server0, FTP Server 1, FTP Server 2, FTP Server 3, FTP Server 4

[Default]: FTP Server0

◆ FTP Host Name (address)

Enter the host name (address) of FTP server.

[Setting]: Domain name or IP address

[Default]: No settings

♦ User

Enter the user name of FTP server.

[Setting]: 0 - 32 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [.] period,

[@] at sign, and [] vertical bar.

♦ Password

Enter the password of FTP server.

[Setting]: 0 to 30 letters of one-byte alphanumeric character and symbols, except [] space,

[CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark,

[¥] JPY mark, or backquote [`].

[Default]: No settings

◆ Mode

Select a mode to be passive or active.

[Setting]: Passive mode, Active mode

[Default]: No settings

◆ Connection Port

The connection port number can be set with between 0 and 65535.

[Setting]: 0 - 65535 (numeric values)

[Default]: No settings

♦ Secure Type

Select the security type from None, FTPS (Explicit), or FTPS (Implicit).

[Setting]: None, FTPS(Explicit), FTPS(Implicit)

[Default]: None

♦ Host Folder

Enter the host folder name to be opened. If it is left blank, the open folder specified by server is used.

[Setting]: 0 - 50 letters of one-byte alphanumeric character, [_] underline, [-] hyphen, [/] slash and [.] period.

[Default]: No settings

♦ Server Connection Timeout (sec)

Set the timeout period until the system connects to the server.

[Setting]: 10 - 300 (numeric values)

[Default]: 20

◆ Data Transfer Timeout (sec)

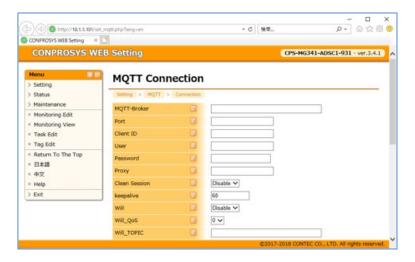
Set the timeout period until the data transfer is completed.

[Setting]: 30 - 3600 (numeric values)

[Default]: 60

18. MQTT Connection

Set up communication with MQTT-Broker.



♦ MQTT-Broker

Set up a host name and an IP address of connecting Broker connect.

[Setting]: IP address or domain name [0-128 letters of one-byte alphanumeric character, (-) hyphen,

(.)period, and vertical bar (|)]

[Default]: No settings

♦ Port

Set up a port number of connecting Broker.

[Setting]: 0 - 65535 (numeric values)

[Default]: No settings

♦ Client ID

Set up a Client ID to identify this product.

A unique ID needs to be set for the connecting Broker.

If a null character is set, the serial number of the product will be automatically used.

[Setting]: Up to 256 alphanumeric characters. The serial number will be automatically set if a null character is used.

[Default]: Serial number of the product

♦ User

Set User name when User name/Password Authentication for the connecting Broker is set.

[Setting]: 0 to 256 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

[Default]: No settings

Enter a user name.

◆ Password

Set this up when User name/Password Authentication is set for the connecting Broker.

Enter a user name.

[Setting]: 0 to 256 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

[Default]: No settings

Proxy

You can specify SOCKS5 proxy in the following format to connect as necessary.

[The format of SOCKS5 proxy]:

socks5h://[username[:password]@]host[:port]

[Setting]: SOCKS5 Protocol URL

[Default]: No settings

♦ Clean Session

Enabling or Disabling the Clean Session.

If the Clean Session is disabled, QoS 1 and QoS 2 messages are stored in the Broker side even when the product is disconnected from the Broker. These messages can be retrieved after a reconnection. If this is enabled, the messages cannot be stored in the Broker side when the product is disconnected from the Broker.

[Setting]: Disable, Enable

[Default]: Disable

♦ keepalive

Set a cycle of sending a PINGREQ command to the Broker.

Connections with the Broker are checked at the specified cycle.

[Setting]: 1 - 300 (numeric values)

[Default]: 60

♦ Will

Enabling or Disabling the Will.

When the Will is enabled, the string specified in Will_Payload is sent to Will_TOPIC if the product is disconnected from the Broker.

[Setting]: Disable, Enable

[Default]: Disable

♦ Will_QoS

Set QoS to send a message when the Will is enabled.

- QoS 0: Send a message only one time.
- QoS 1: Send a message to be reached at least one time.
- QoS 2: Send a message precisely to be reached one time.

[Setting]: 0 - 2

[Default]: 0

♦ Will_TOPIC

Specify TOPIC to send a message when the Will is enabled.

[Setting]: 1-1024 letters of string

[Default]: No settings

♦ Will_Payload

Specify Payload when the Will is enabled.

[Setting]: 1-1024 letters of string. The default will be automatically set if a null character is used.

[Default]: { "SN":" The serial number of the product", "S" : "DISCONNECT" }

◆ Encrypted Connection

Enabling or Disabling the encryption for communication.

When the encryption is enabled, SSL / TLS are used for communication.

[Setting]: Disable, Enable

[Default]: Disable

♦ Private Key

When the encrypted connection is enabled, the Private key can be set as necessary.

[Setting]: Select one from the file dialog.

[Default]: No settings

◆ Client Certificate

When the encrypted connection is enabled, the Client Certificate can be set as necessary.

[Setting]: Select one from the file dialog.

[Default]: No settings

◆ CA Certificate

When the encrypted connection is enabled, the CA Certificate can be set as necessary.

[Setting]: Select one from the file dialog.

[Default]: No settings

◆ Encryption Algorithm

Select the algorithm for Encryption/Decryption.

When the algorithm is selected, the data portion in the message can be encrypted to send.

The receiver has to decrypt the encrypted message sent from the product.

[Setting]: Select one from the dropdown list

[Default]: No settings

Encryption Password

Set the Encryption password for sending data.

[Setting]: 0 to 256 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

Decrypted Password

Set the password to decrypt the received data.

The Encryption algorithm should be set within the payload according the following format.

"ALG":"AES-256-CBC.BASE64 or AES-256-CBC.BASE64.NOSALT"
"E_DATA": "Encrypted DATA"

[Setting]: 0 to 256 letters of one-byte alphanumeric character and symbols, except [] space, [CR+LF] Carriage Return and Line Feed, ["] double quotation mark, ['] single quotation mark, [¥] JPY mark, or backquote [`].

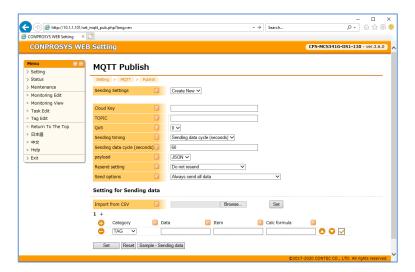
[Default]: No settings

◆ Send a Test Message

Enter TOPIC and click the [Execute] button. A test message can be sent to the connecting Broker. The test string is "CONPROSYS_MQTT_TEST_MESSAGE".

19. MQTT Publish

Set up MQTT Publish.



♦ Sending Settings

Select the "Create New" for a new setting. Select the Cloud Key to edit the setting previously created. Up to 16 settings can be created.

[Setting]: Select one from the dropdown list.

[Default]: Create New

♦ Cloud Key

Cloud Key is a setting name to send data.

Set the Cloud Key with a null character or up to 10 alphanumeric characters.

[Setting]: 0 - 10 alphanumeric characters

[Default]: No settings

♦ TOPIC

Set up TOPIC.

[Setting]: 1-1024 letters of string

♦ QoS

Set QoS to send a message.

QoS 0: Send a message only one time.

• QoS 1: Send a message to be reached at least one time.

QoS 2: Send a message precisely to be reached one time.

[Setting]: 0 - 2 [Default]: 0

♦ Sending timing

Select the timing of sending data.

- Sending data cycle (seconds): Send data at every specified number of seconds.
- Task Trigger: Send data when the task "MQTT PUB Trigger" is executed.

[Setting]: Select one from the dropdown list.

[Default]: Sending data cycle (seconds)

◆ Sending data cycle (seconds)

Data are sent at every specified number of seconds when the timing is set to Sending data cycle (seconds).

[Setting]: 1 - 600 (numeric values)

[Default]: 60

payload

Specify payload format to send data.

JSON:

Data specified in CONPROSYS WEB Setting are dynamically changed into JSON format to be sent.

STAG:

Value of STAG specified is sent.

[Setting]: JSON, STAG

[Default]: JSON

♦ STAG

When STAG is set for "payload" setting, specify the STAG number to send value.

[Setting]: STAG00

[Default]: STAG00 - STAG499

Resend setting

Set whether to keep data in the product at the time of disconnection and send them later when the controller is reconnected. Resending data can be kept for three days up to 16MB.

If the data exceeds 16MB, the oldest data in each Cloud Key will be deleted.

- Do not resend: Data will not be stored when the product is disconnected from the Broker.
- Resend "Latest Data -> Resend data":
 Each time the latest data are sent at the specified cycle first, then the resend data will be sent.
 If the specified sending cycle comes while resending data, the latest data will be sent first, then resending data restarts.
- Resend "Resend data -> Latest data":
 The resend data are sent first, then the latest data will be sent. If the specified sending cycle comes while resending data, the data will be added to the end of the resending data. Sending timing is maintained in chronological order.

[Setting]: Select one from the dropdown list.

[Default]: Do not resend

♦ Send options

Set up Send options.

- Always send all data: All data are always sent even when there is no change in data.
- Send changed data only: When there is no change in data from the previous sending time, those data will not be included in the sending strings.

[Setting]: Select one from the dropdown list.

[Default]: Always send all data

Option when sending change data

Select the sending option when there are no changes in all data.

"Message ID", "Cloudkey", "Time", and "Serial number of the product" are for headers.

[Setting]: Select one from the dropdown list.

[Default]: When there is no change data - Do not send

♦ Import from CSV

Import the Setting for Sending data from CSV file.

From the selection button, select CSV file in the following format.

[CSV file format]:

DATA,NAME,TYPE,CALC,USE XXXX,XXXX,XXXX,XXXX,XXXX

•••

DATA : Data NAME : Item

TYPE (for M2M Gateway only): Type

When the category is not selecting PLC: 0

When the category is selecting PLC:

0: Unsigned 16bit data

1 : Signed 16bit data

2: Unsigned 32bit data (BE)

3: Signed 32bit data (BE)

4: Unsigned 32bit data (LE)

5 : Signed 32bit data (LE)

6: Floating-point 32bit data (BE)

7: Floating-point 32bit data (LE)

CALC: Calc formula

USE: 1 (Enable) or 0 (Disable)

Click the [Set] button to save the settings.

♦ Export to CSV

Export the Setting for Sending data to CSV file (letters/CR code : crlf with utf-8-bom)

Export the saved contents in each cloud key with the following format.

[CSV file format (File name: (cloud key_)pubdata.csv)]:

DATA,NAME,TYPE,CALC,USE XXXX,XXXX,XXXX,XXXX,XXXX

•••

DATA : Data NAME : Item

TYPE (For M2M Gateway only): Type

When the category is not selecting PLC: 0

When the category is selecting PLC:

0: Unsigned 16bit data

1 : Signed 16bit data

2: Unsigned 32bit data (BE)

3 : Signed 32bit data (BE)

4 : Unsigned 32bit data (LE)

5 : Signed 32bit data (LE)

6: Floating-point 32bit data (BE)

7: Floating-point 32bit data (LE)

CALC: Calc formula

USE: 1 (Enable) or 0 (Disable)

Click the [Set] button to save the settings.

♦ Setting for Sending data

Select sending data when "JSON" is specified for "payload" setting.

The items can be increased or decreased with the "+" and "-" buttons.

Up to 3000 items are configurable.

The order of the setting items can be changed by clicking the "▲▼" buttons.

Checking off the box can enable or disable data individually. Disabled data are not included in the sending payload.

◆ Category

Select the category of setting data. As for PLC, the device names that are set for "Read", "TriggerRead"] in [PLC Setting (P)" can be used.

[Setting]: Select one from the dropdown list.

[Default]: TAG

◆ Data

Select data to send. This is ignored when setting a non-existent target in the list.

[Setting]: Select one from the data list. To set the range directly, use up to 20 one-byte alphanumeric characters, underline [_], and hyphen [-].

[Default]: No settings

◆ Item

Set any string with a null character or up to 20 alphanumeric characters.

[Setting]: Up to 20 one-byte alphanumeric characters, underline [], and hyphen [-].

[Default]: No settings

Type

This can be set when the category is PLC. Set up the type of PLC data.

[Setting]: Select one from the dropdown list.

[Default]: Data format specified in the PLC settings.

♦ Cal formula

Set up Cal formula when the category is not selecting SATA.

Send the calculation result of the set conversion formula. The result will not be sent if the calculation failed.

[Setting]: Calculation formula with up to 128 characters

[Default]: No settings

Available symbols or marks

Available data

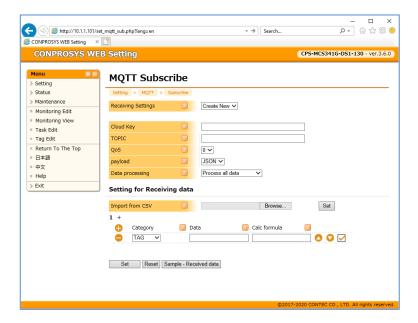
TAG, MODBUS, DEVICE, DATA (Selected data)

Sample

- DATA*TAG00
- DATA+10
- MODBUS0001<<1

20. MQTT Subscribe

Set up MQTT subscribe.



♦ Receiving Settings

Select the "Create New" for a new setting. Select the Cloud Key to edit the setting previously created. Up to 16 settings can be created.

[Setting]: Select one from the dropdown list.

[Default]: Create New

Cloud Key

Cloud Key is a setting name to receive data.

Set the Cloud Key with a null character or up to 10 alphanumeric characters.

[Setting]: 0 - 10 alphanumeric characters

[Default]: No settings

♦ TOPIC

Set up TOPIC.

[Setting]: 1-1024 letters of string

♦ QoS

Set QoS to send a message.

- QoS 0: Send a message only one time.
- QoS 1: Send a message to be reached at least one time.
- QoS 2: Send a message precisely to be reached one time.

[Setting]: 0 - 2 [Default]: 0

payload

Specify payload format to receive data.

JSON:

Write received JSON string into data that are specified in CONPROSYS WEB Setting. As for the JSON format, check the CONPROSYS Reference Manual or Data example in Receiving Format.

STAG:

Write received data into specified STAG.

[Setting]: JSON, STAG

[Default]: JSON

♦ STAG

When is payload set for STAG, specify the STAG to write the payload that is received.

[Setting]: STAG00

[Default]: STAG00 - STAG499

Data processing

Set up Data processing.

- Process all data: Process all of the received data.
- Process only new data: Process only new data since the previous processing. Receiving data should contain time stamp (ISO8601 extended form).

Perform processing if there is no time stamp. If no time zone is specified, processing will be performed with the time zone set in the product.

[Setting]: Select one from the dropdown list.

[Default]: Process all data

[Time stamp format (ISO8601 extended form)]:

- "T":"YYYY-MM-DDThh:mm:ss.sss"
- "T":"YYYY-MM-DDThh:mm:ss.sss+timezone"

♦ Import from CSV

Import the Setting for Receiving data from CSV file.

From the selection button, select CSV file in the following format.

[CSV file format]:

DATA,TYPE,CALC,USE XXXX,XXXX,XXXX,XXXX

•••

DATA: Data

TYPE (For M2M Gateway only): Type

When the category is not selecting PLC: 0

When the category is selecting PLC:

0: Unsigned 16bit data

1: Signed 16bit data

2: Unsigned 32bit data (BE)

3: Signed 32bit data (BE)

4: Unsigned 32bit data (LE)

5 : Signed 32bit data (LE)

6 : Floating-point 32bit data (BE)

7: Floating-point 32bit data (LE)

CALC: Calc formula

USE: 1 (Enable) or 0 (Disable)

Click the [Set] button to save the settings.

♦ Export to CSV

Export the Setting for Receiving data to CSV file (letters/CR code: crlf with utf-8-bom).

The confirmed setting contents are exported per cloud key.

Export the setting with the following format.

[CSV file format (File name: (cloud key_)subdata.csv)]:

DATA,TYPE,CALC,USE XXXX,XXXX,XXXX,XXXX

•••

DATA: Data

TYPE (For M2M Gateway only): Type

When the category is not selecting PLC: 0

When the category is not selecting PLC:

0: Unsigned 16bit data

1 : Signed 16bit data

2: Unsigned 32bit data (BE)

3 : Signed 32bit data (BE)

4 : Unsigned 32bit data (LE)

5 : Signed 32bit data (LE)

6: Floating-point 32bit data (BE)

7 : Floating-point 32bit data (LE)

CALC: Calc formula

USE: 1 (Enable) or 0 (Disable)

Setting for Receiving data

Select receiving data when "JSON" is specified for "payload" setting.

The items can be increased or decreased with the "+" and "-" buttons.

Up to 3000 items are configurable.

The order of the setting items can be changed by clicking the "▲▼" buttons.

Checking off the box can enable or disable data individually. Not performed when disabled data are received.

♦ Category

Select the category of setting data. Device Names that are set for "Write", "TriggerWrite", and "EventWrite" in [PLC Setting (P)"] can be used.

[Setting]: Select one from the dropdown list.

[Default]: TAG

◆ Data

Select data to receive. This is ignored when setting a non-existent target in the list.

[Setting]: Select one from the data list. To set the range directly, use up to 20 one-byte alphanumeric characters, underline [_], and hyphen [-].

[Default]: No settings

♦ Type

This can be set when the category is PLC. Set up the type of PLC data.

[Setting]: Select one from the dropdown list.

[Default]: Data format specified in the PLC settings.

♦ Cal formula

Set up Cal formula when the category is not selecting SATA.

Write the calculation result of the set conversion formula. The result will not be written if the calculation failed.

[Setting]: Calculation formula with up to 128 characters

[Default]: No settings

Available symbols or marks

Available data

TAG, MODBUS, DEVICE, DATA (Selected data)

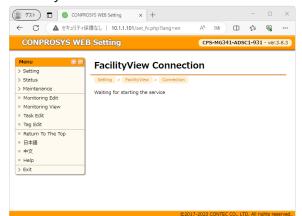
Sample

- DATA*TAG00
- DATA+10
- MODBUS0001 < < 1

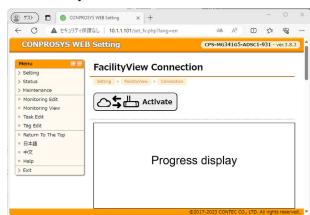
21. FacilityView Connection

Set up communication with FacilityView.

[FacilityView Service: Disable]



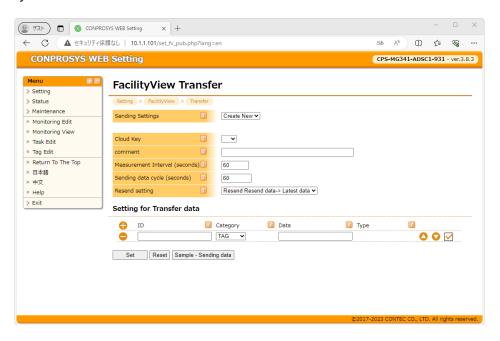
(FacilityView Service: Enable)



Display Area	Display Contents	Description
Status display	Waiting for starting the service	Indicates that the FacilityView service is not enabled or that the service has not started immediately after startup.
Execution button	Activate	Without activation information, press the button to start activation. Button operation is disabled during activation. ROM storage is required to save activation information.
	Connected Connected	With activation information already present, pressing the button deletes the current activation information and starts activation. Button operation is disabled during activation. ROM storage is required to save activation information.
Progress display	 Progress status and error details Remaining time until timeout	Displays the activation progress status and the response status from FacilityView. During activation, it displays the time remaining until the timeout to receive the results.

22. FacilityView Transfer

Set up FacilityView Transfer.



♦ Sending Settings

Select "Create New" to set a new sending data settings, and select the Cloud Key to edit the settings once created.

Up to 20 items can be created.

[Setting]: Select one from the dropdown list.

[Default]: Create New

♦ Cloud Key

Select one of 01 to 20.

[Setting]: Select from 01-20.

[Default]: No settings

comment

Set a comment. Set to empty or 20 or fewer alphanumeric string.

[Setting]: 0-20 alphanumeric characters

Measurement Interval (seconds)

Set interval time between 1 and 60 seconds to measure data.

[Setting]: 1-60 (numerical value)

[Default]: 1

♦ Sending data cycle (seconds)

Set interval time between 60 and 3600 seconds to send measured data to FacilityView.

[Setting]: 60-600 (numerical value)

[Default]: 60

Resend setting

When disconnected, set whether to retain data in CONPROSYS and resend it when connected to the server again. The resend data is stored for 3 days.

- Do not resend: Data is not retained when disconnecgted.
- Resend, Resend data-> Latest data:

When connected to the server again, send the retained data first, then the latest data. If the new data need to be sent, added it to the end of the retained data.

[Setting]: Do not resend, Resend, Resend data-> Latest data

[Default]: Resend, Resend data-> Latest data

♦ Setting for Transfer data

The items can be increased or decreased with the "+" and "-" buttons.

Up to 200 items are configurable.

The order of the setting items can be changed by clicking the " $\blacktriangle \blacktriangledown$ " buttons.

Checking off the box can enable or disable data individually. Disabled data are not included in the sending payload.

♦ ID

Set any string of 1 to 20 characters. This string is included in the transfer data.

[Setting]: Up to 20 characters, underline(_) and hyphen(-)

♦ Category

Select the category of data.

[Setting]: TAG, STAG, DEVICE, PLC_{device name}

[Default]: No settings

◆ Data

Select the target. Ignored if the target does not exist in the list.

[Setting]: Select from data list。 Up to 20 characters, underline(_) and hyphen(-).

Category=TAG: TAG00∼TAG499

Category=STAG: STAG00~STAG499

Category=DEVICE: Available Device IO

Category = PLC_{device name}: MODBUS address of the target PLC device configuration

[Default]: No settings

♦ Type

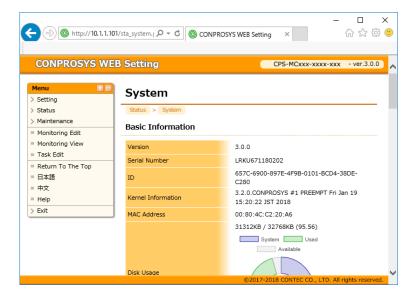
This can be set when the category is PLC. Set up the type of PLC data.

[Setting]: Unsigned 16bit data, Signed 16bit data, Unsigned 32bit data (BE), Unsigned 32bit data (BE),

Unsigned 32bit data (LE), Unsigned 32bit data (LE)

23. System

Display the system information details of the product.



♦ Version

Display the firmware version.

♦ Serial Number

Display the serial number.

♦ ID

ID necessary for CDS or CDS2 registration of cloud server is displayed.

♦ Kernel Information

Display the kernel information.

♦ MAC Address

MAC address of LAN is displayed.

◆ Disk Usage

Display the currently used amount of disk.

♦ Memory Usage

Display the currently used size of memory.

◆ Battery Residual Capacity

Display whether the battery for RTC runs out.

♦ 3G

Display the radio wave intensity (RSSI) and the technical standards conformity information.

The wave intensity is evaluated in 31 levels.

Each intensity indicates as follows:

When the wave cannot be found, "Not found" is viewed.

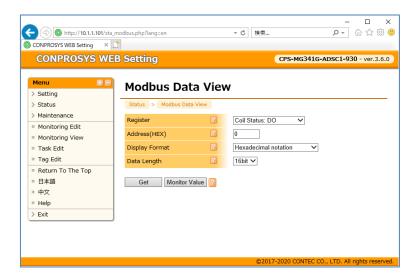
Value	RSSI
0	-113 dBm or less
1	-111 dBm
2 - 30	-109 - 53 dBm
31	-51 dBm or greater

^{*} If the value is close to 0, it indicates the radio wave environment is poor, and if it is close to 31, the radio wave environment is favorable.

24. Modbus Data View

Display each register value accessible in Modbus TCP.

Select the register from a pull-down menu and specify the address. Click the "get" to get a value. Specify the address with the values between 0 and FFFF.



♦ Register

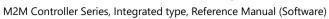
Select a register type to display.

♦ Address

Enter a register address to display.

Addresses differ depending on the product.

See the list below to check the address corresponding to your product.



• CPS-MC341-ADSC1-111

• CPS-MC341G-ADSC1-111

• CPS-MC341G-ADSC1-110

CPS-MC341-ADSC2-111

• CPS-MC341Q-ADSC1-111

CPS-MC341-ADSC1-931

Register	Address	Name	Description
Coil	0	DO-0	0: OFF
	1	DO-1	1: ON
	2	not used	
	3	not used	
	4	not used	
	5	not used	
	6	not used	
	7	not used	
	8 and higher	not used	
Input status	0	DI-0	0: OFF
	1	DI-1	1: ON
	2	DI-2	
	3	DI-3	
	4	not used	
	5	not used	
	6	not used	
	7	not used	
	8 and higher	not used	
Input register	0	AI-0	Unit: LSB
	1	AI-1	12-bit resolution
			* The industrial value
			conversion is used when
			Industrial Value Conversion is
	2	CNT0	enabled in the Device setting. Upper 16-bit
	3	CNT0	Lower 16-bit
	4	CNT1	Upper 16-bit
	5	CNT1	Lower 16-bit
	6 and higher	not used	LOWEL TO-DIL
Holding register		not used	
Holding register	0 and higher	not used	

CPS-MC341-DS1-111 CPS-MC341-DS2-111 CPS-MC341-DS11-111

Register	Address	Name	Description
Coil	0	DO-0	0: OFF
	1	DO-1	1: ON
	2	DO-2	
	3	DO-3	
	4	DO-4	
	5	DO-5	
	6	DO-6	
	7	DO-7	
	8 and higher	not used	
Input status	0	DI-0	0: OFF
	1	DI-1	1: ON
	2	DI-2	
	3	DI-3	
	4	DI-4	
	5	DI-5	
	6	DI-6	
	7	DI-7	
	8 and higher	not used	
Input register	0	not used	
	1	not used	
	2	not used	
	3	not used	
	4	not used	
	5	not used	
	6 and higher	not used	
Holding register	0 and higher	not used	

CPS-MC341-A1-111

Register	Address	Name	Description
Coil	0	not used	0: OFF
			1: ON
Input status	0	not used	0: OFF
			1: ON
Input register	0	AI-0	Unit: LSB
	1	AI-1	16-bit resolution
	2	AI-2	* The industrial value
	3	AI-3	conversion is used when
	4	AI-4	Industrial Value Conversion is
	5	AI-5	enabled in the Device setting.
	6	AI-6	
	7	AI-7	
	8 and higher	not used	
Holding register	0	AO-0	Unit: LSB
	1	AO-1	16-bit resolution
	2 and higher	not used	

♦ Display Format

Select a format to display data.

When selecting [Coil Status (Coil): DO] or [Input status: DI], the converted value will be displayed in the conversion display line.

When selecting [Input register : AI/CNT] or [Holding register : AO], the converted value will be displayed in each cell.

[Setting]: Hexadecimal notation / Decimal notation(Signed) / Decimal notation(Unsigned) / Floating

decimal / ASCII

[Default]: Hexadecimal notation

◆ Data Length

Select a data length to display data.

[16bit] is not selectable when [Floating decimal] is chosen for the display format.

[Data length] become unavailable when [ASCII] is chosen for the display format.

[Setting]: 16bit / 32bit / 64bit

[Default]: 16bit

Monitor Value

At a regular cycle, the displayed Modbus data are re-obtained and updated in the table.

Clicking the button switches to execute or stop the action.

♦ Change Value

Data within the range of Modbus addresses 0x2000 - 0x47FF can be changed.

Select the cell you wish to change and click the [Change Value] button, or double-click the desired cell to open the window.

Enter a value in the [Setting Value] and click the [Change] button. This write the value into the address of the specified cell.

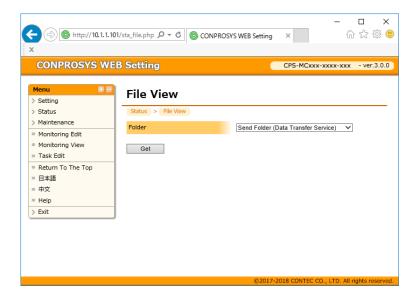
The function of the [Monitor Value] will be paused while the [Change Value] window is displayed.

[Setting]: Depending on the format selected in the display format and the data length

25. File View

View the file in the specified folder.

Select the folder that stores the data to view. Click the [Get] to open a cvs file.



Selectable names and description are listed below.

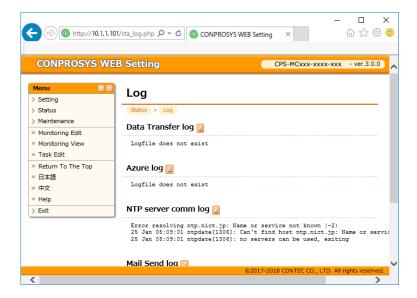
Folder Name	Description	Measured data file name
Send folder (Data transfer service)	Store files to be sent to a server by data transfer service.	YYYYMMDDhhmmss.csv
Send folder (Task)	Store files to be sent to a server by task.	YYYYMMDDhhmmss_file number.csv
Send folder (Child unit)	Store files to be received from child unit. (This can be viewed when the CPS-MC341Q-ADSC1-111 is used as Master)	YYYYMMDDhhmmss_child unit MAC address.csv
Send folder (Mail)	Store mails to be sent by task.	YYYYMMDDhhmmssffffff.mail
Send folder (SMS)	Store mails to be sent by SMS.	YYYYMMDDhhmmssfff.sms
Send folder (Azure)	Store files to be sent to Azure IoT Hub by task.	YYYYMMDDhhmmss _azure file number.csv
Send folder (FTP)	Store files to be sent to FTP server by task.	(File name *1).csv
Send folder (Task-CHS)	Store files to be sent to CHS by task.	Cloud Key_YYYYMMDDhhmmss.csv
Send folder (FacilityView)	Store files to be sent by FacilityView.	Cloud Key_YYYYMMDDhhmmss.csv
Resend folder (Transfer service)	Store files that failed to be sent to a server by transfer service.	YYYYMMDDhhmmss.csv
Resend folder (Task)	Store files that failed to be sent to a server by task.	YYYYMMDDhhmmss_file number.csv
Resend folder (Child unit)	Store files received from child unit and failed to send to server. (This can be viewed when	_

Folder Name	Description	Measured data file name
	the CPS-MC341Q-ADSC1-111 is used as Master)	
Resend folder (Mail)	Store mails that failed to be sent by task.	YYYYMMDDhhmmssffffff.mail
Resend folder (SMS)	Store mails that failed to be sent by SMS.	YYYYMMDDhhmmssfff.sms
Resend folder (Azure)	Store files that failed to be sent to Azure IoT Hub. (stored in converted json format)	YYYYMMDDhhmmss _azure file number.json
Resend folder (FTP)	Store files that failed to be sent to FTP server.	(File name *1)_ YYYYMMDDhhmmss.csv
Resend folder (MQTT)	Store files that failed to be sent by MQTT.	{Cloud Key_}YYYYMMDDHH.csv
Resend folder (Task-CHS)	Store files that failed to be sent to CHS.	Cloud Key_YYYYMMDDhhmmss.csv
Resend folder (FacilityView)	Store files that failed to be sent by FacilityView.	Cloud Key_YYYYMMDDhhmmss.csv
Task SD card folder	Store data collection files set in SD area of task.	file number.csv
Task RAM folder	Store data collection files set in RAM area of task.	
Task SD backup folder	Store backup files created from task.	YYYYMMDD_file number.csv
Auto Backup folder	Store backup files (json file and csv file) created by enabling Auto backup in Data transfer setting. Files of the previous day are compressed at AM 3:59 once a day.	Date.tgz

^{*1} File name specified by user in Task can be viewed.

26. Log

Server communication log displays the communication log from the server.

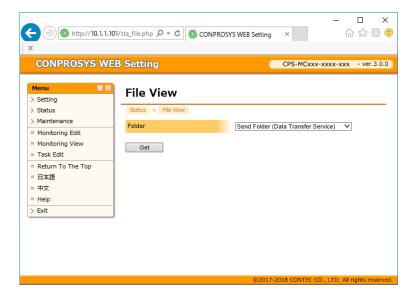


Sever connection log shows the communication logs listed below.

Folder Name	Description
Data Transfer log	Show the latest communication log from the server specified as the data transfer URL.
Azure log	Show the latest sending data log to Azure IoT Hub.
NTP server communication log	Show the latest communication log from the specified NTP server.
Mail send log	Show the latest communication log from the specified SMTP server.
3G AT command log	Show the latest AT command log at startup and when the 3G function restarts.
SMS Send log	Show the latest SMS Send log.
FTP communication log	Show the latest communication log from the FTP server that is set in FTP setting.
MQTT communication log	Show the latest communication log, publishing and subscribing conversion logs of MQTT. Publishing and subscribing will be logged per Cloud Key in the event of an error.
CHSResponse log	Displays the data changed in CHS or the latest error for writable tags of services, PLCs and tasks (CHS S/R). Logs are displayed per Cloud Key.
Router log	This shows the latest iptables logs. The log to be acquired can be selected by [Setting] \rightarrow [Service] \rightarrow [Router Log Function].
FacilityView comm log	This shows the latest communication log from the FacilityView.

27. Firmware Update

Update the firmware.



♦ Firmware Update

Firmware update file can be downloaded from the CONTEC website.

From "Browse" button, specify the firmware and update it by clicking "Update" button.

Download

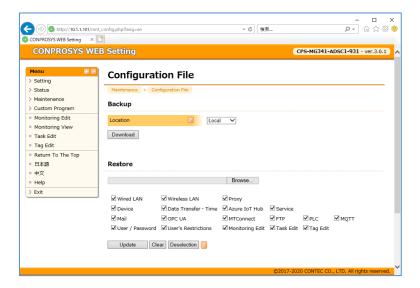
https://www.contec.com/download/

A CAUTION

- The file is compressed by ZIP format. Decompress it and use the bin file extension.
- ST1 and ST2 LEDs of the product keep flashing while updating.
 Do not turn off the power while LEDs are flashing. Otherwise, data get damaged and it disables the product to startup.
- Firmware cannot be downgraded.

28. Configuration File

Backing up, restoring, and initializing the configuration file can be performed.



Backup

By clicking "Download", the backup file can be downloaded into the specified [Location].

If the same backup file is found when downloading the file into SD card, it is rewritten.

When a file opens on a browser, right-click on the link and select the item to store in a file.

♦ Restore

From "Browse" button, specify the file to restore and click the "Update".

The downloaded backup file (configuration file) can be uploaded to the device and the original settings at the time of backup can be restored.

The configuration of the selected items will be reflected.

By clicking "Deselection", selected items are all cleared.

The browsing file can have any name.

◆ Initialize

For initialization, initialize all settings to their factory defaults.

Each setting can be reset to its default by clicking the "Execute".

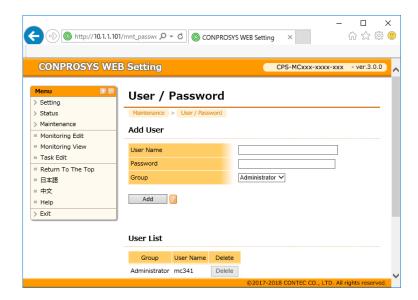
With a check box, select "Restore the network settings", and the settings of wired LAN (such as IP address) alone can be remained.

After rebooting, settings return to default.

29. User/Password

Add or delete a user to log in CONPROSYS WEB Setting through a Web browser.

Users can be grouped as "Administrator", "User", or "Guest", and the password per user needs to be set.



Available functions when logging in with each group name are listed below.

When logging in as "User", functions availabilities can be changed by Permit/Prohibit in the User's Restrictions setting. See and check the "Availability" in the list below.

*Refer to "User's Restrictions (page 113)" for detailed information on the setting.

In the "Availability" line, "O" indicates Permit, and "-" indicates Prohibit.

In the "Default" line, "O" indicates the functions that "User" can use in the default setting.

	Function		Administrator		_
			Default	Availability	Guest
	Wired-LAN	0	0	0	-
Setting	Wireless LAN	0	0	0	-
(Network)	3G	0	0	0	-
	Proxy	0	0	0	-
	Module	0	-	0	-
	Device	0	-	0	-
	Data Transfer	0	0	0	-
	Azure IoT Hub	0	0	0	-
Cattin a	Time	0	0	0	-
Setting	Service	0	-	0	-
	Mail	0	0	0	-
	SMS	0	0	0	-
	FTP	0	0	0	-
	OPCUA	0		0	-

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	MTCONNECT	0	-	0	-
	PLC	0	0	0	-
	MQTT	0	0	0	-
	FacilityView	0	1	0	-
	System	0	0	-	0
	Modbus	0	0	-	0
Status	File View	0	0	-	-
	Log	0	0	-	-
	License	0	0	-	-
	Firmware Update	0	-	-	-
	Configuration File	0	-	-	-
Maintenance	User/Password	0	-	-	-
	Network Test	0	0	-	-
	User's Restrictions	0	-	-	-
Мо	nitoring Edit	0	-	0	-
Mor	nitoring View	0	0	-	0
	Task Edit	0	-	0	-
	Tag Edit	0	-	-	-
	Save and Reboot	0	0	-	-
	Save and Shutdown	0	0		-
Exit	Save	0	0	-	-
	Reboot	0	0	-	-
	Shutdown	0	0	-	-

♦ User Name /Password

Set a user name and password per added user. Users can be grouped as "Administrator", "User" or "Guest", and the password per user needs to be set.

For "Guest" group, pages regarding status can only be accessible.

For "User" group, pages regarding status and some setting pages can only be accessible.

[Setting]: 1 to 31 letters of one-byte alphanumeric character, [] underline, and [-] hyphen.

◆ Group

Added users can be grouped.

For [Administrator] group, all device settings are configurable.

For [User] group, status and some device settings can be configurable.

For [Guest] group, pages regarding status can only be accessible.

[Setting]: Administrator, User, Guest

[Default]: Administrator

◆ User List

Added users can be deleted by clicking the "del".

[Preset user]: User name: mc341, Password: mc341, Group, and Administrator

◆ Administrator page

When logging in as a user group or a guest group, you can go to administrator page by logging in from "Admin Page" of the side menu.

A user in a guest group can also log in as a user group from "User Page" of the side menu.

◆ Login/Password

For login password setting, user can set whether User name/Password is enabled or disabled.

When setting to disable, the user can access Web page without user name and password.

[Setting]: Enable, Disable

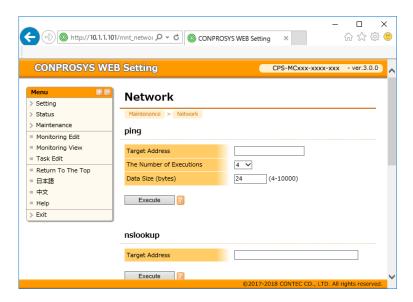
[Default]: Disable

A CAUTION

- Change a password from the default setting and make your own password.
- Changed settings become available after rebooting.

30. Network

Test the network communication.



Network reachability can be checked with commands, including ping, lookup, ipconfig, net stat, route, and resolve.conf.

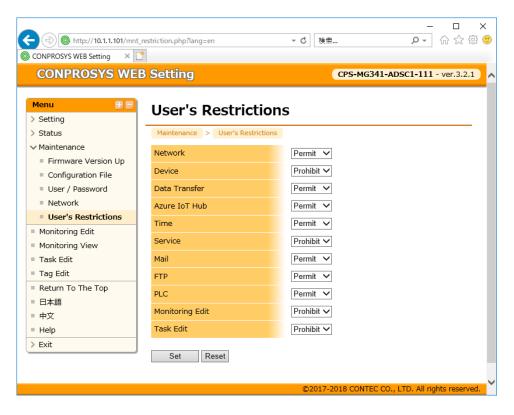
- ping ...Display a checking result of reachability to input hostname.
- lookup ...Display a result of DNS look up for input hostname.
- ipconfig ...Display a confirmation result of the network environment.
- net stat ...Display a list of network connection.
- route ...Display a routine table.
- resolv.conf ...Display DNS information.

31. User's Restrictions

"User's Restrictions" can be viewed in a menu when only logging in as "Administrator" and this sets the functions to be permitted or prohibited.

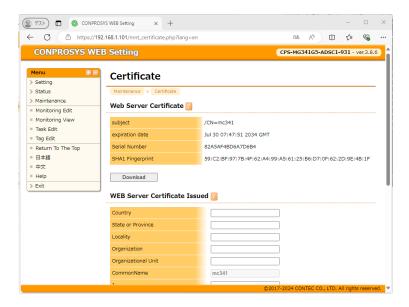
These settings are the functions that can be used or monitored by logging in as "User".

The function selected as "prohibit" in User's Restrictions will not be displayed in the menu when logging in as "User".



32. Certificate

Download and issue a web server certificate and upload a trusted root certificate.



♦ Web Server Certificate

Displays information about the self-certificate used by the web server.

By default, it displays certificates that have already been issued.

This can be changed from the certificate issuing function below.

Click the Download button to download the WEB server certificate (server.crt).

◆ WEB Server Certificate Issued

Any self-certification can be issued.

Time synchronization must be completed.

The Subject field can be set to any value except CommonName.

The validity period is 10 years from issuance. At least one IP address of the device to be accessed via HTTPS must be set in the Device IP Address field. Clicking the "Issue" button will renew the above web server certificate. The renewed certificate will become valid after restarting the service or restarting the device after saving the settings.

Country

[Setting]: 2 letters of one-byte alphanumeric character, [.] period, [-] hyphen, [] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: No settings

State or Province

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen, [] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon. [Default]: No settings

Locality

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: No settings

Organization

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: No settings

Organizational Unit

[Setting]: 0 to 64 letters of one-byte alphanumeric character, [.] period, [-] hyphen,

[] half-width space, [,] comma, [=] equal, ['] single quotation, and [:] colon.

[Default]: No settings

CommonName

[Default]: mc341

Device IP address

[Setting]: IP address [Default]: No settings

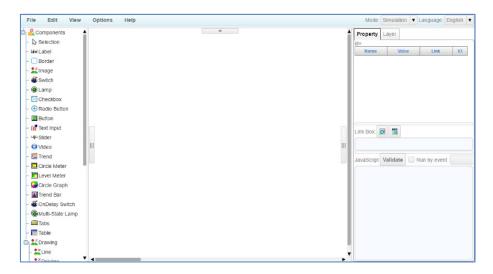
♦ Trusted Root CA Certificate

The Root CA Certificate bundle trusted by the system can be checked by pressing the View button. In addition, users can upload their own certificate bundle (in PEM format) by clicking the Upload button.

33. Monitoring Edit

The page can be created and edited on the monitoring edit page.

Create your own monitoring page by placing control items on the screen.



^{*}Refer to "Monitoring Edit (page 167)" for details.

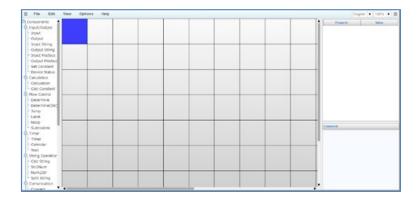
34. Monitoring View

Displays the monitoring screen (CONPROSYS HMI). Input signal status can be monitored on the page.



35. Task Edit

With intuitive operations, various task processing programs can be created on the task editing page "CONPROSYS VTC".

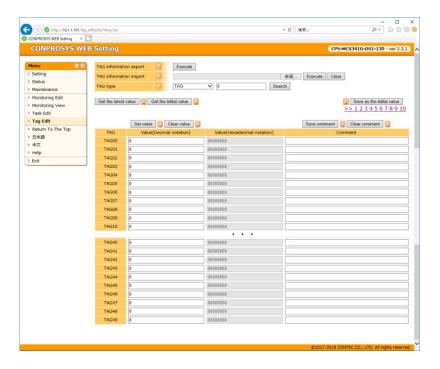


^{*}Refer to "Easy Data Process and Control (page 122)" for details.

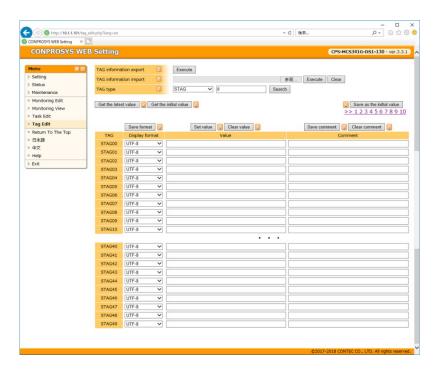
36. Tag Edit

This function monitors TAG/STAG/LTAG/LSTAG and edits their initial values, also a comment can be added. 50 tags can be viewed at one time.

[TAG]



[STAG]

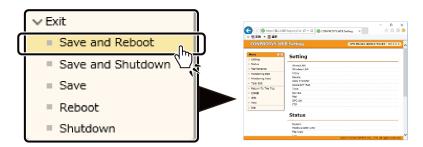


• Refer to "Tag Edit (page181)" for detailed information of Tag Edit page.

37. Save and Reboot

Save the settings and reboot the product.

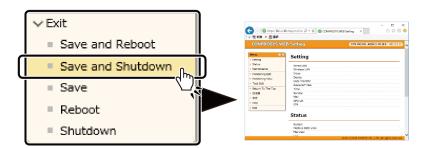
Click the [OK] in the dialog box to execute the save and reboot.



38. Save and Shutdown

Save the settings and shut down the product.

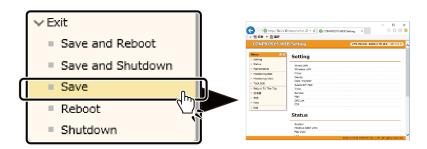
Click the [OK] in the dialog box to execute the shutdown.



39. Save

Save the settings.

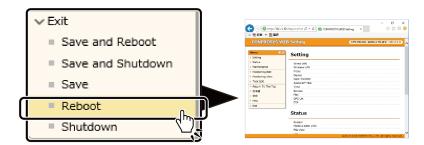
Click the [OK] in the dialog box to execute the save.



40. Reboot

Reboot the product.

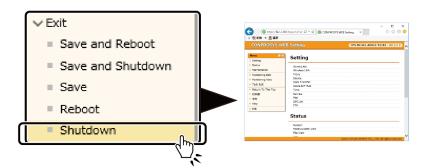
Click the [OK] in the dialog box to execute the reboot.



41. Shutdown

Shut down the product.

Click the [OK] in the dialog box to execute the shutdown.

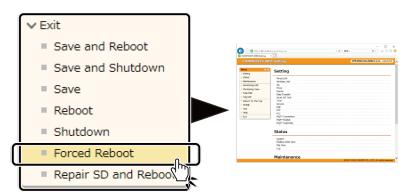


42. Forced Reboot

Forcibly reboot the product without terminating the running process.

Click the [OK] in the dialog box to execute the forced reboot.

 Please note that if executed during ROM rewriting by saving settings or firmware update, system files and user settings may be corrupted, and the device may not start up properly.



43. Repair SD and Reboot

Repair the SD card and reboot the product.

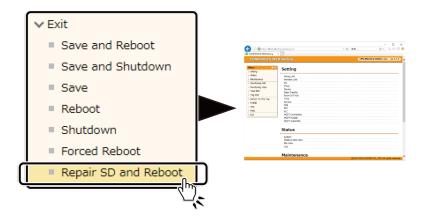
Click the [OK] in the dialog box to execute the repair SD and reboot.

After the SD card is repaired, a log is output and a reboot is executed after 30 seconds.

The bottom of the log also displays the results of the execution.

When [RESULT: 0] is output: No repairable errors.

When [RESULT: 1] is output: A repairable error has been detected or an internal inconsistency has been detected. Errors that are attempted to be repaired are output as a file (FSCKXXXX.REC) in the top directory of the SD card. Since the equipment is not affected, there is no problem in deleting the repair file when it is not needed.



Easy Data Process and Control

This section describes the CONPROSYS VTC (Visual Task Control), with which collecting data or calculating can be done easily through a web browser.

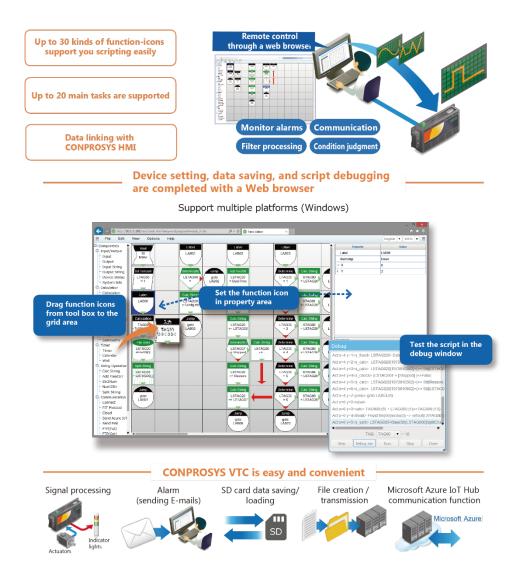
1.CONPROSYS VTC Outline

1. What You Can Do With CONPROSYS VTC

With intuitive operations by simply dragging and dropping task controls from the tool box to the setting area, various task processing programs can be created.

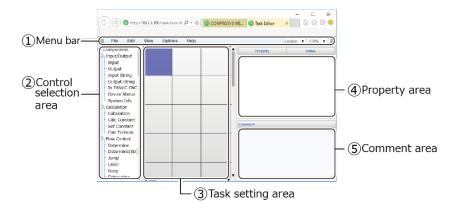
Neither the knowledge of language programming nor the special development environment is necessary.

Settings including I/O with devices, calculation, flow control, string operation, data transfer to Cloud, and file operation can be done easily like drawing a flowchart on the page through a web browser.



2. Work Area

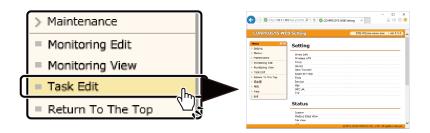
CONPROSYS VTC has the following work areas.



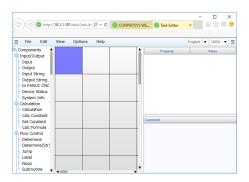
No.	Name	Function		
1	1 Menu bar The menu bar is used to execute commands with menu buttons.			
2	Control selection area	The task controls can be selected to place on the task setting area.		
3	Task setting area	This area is where the task controls are placed and set.		
4	Property area	You can modify the property variables of controls with this area.		
5	Comment area	This area can be used to add comments to the task controls.		

3. Create Processing Tasks

From CONPROSYS WEB Setting, click the [Task Edit].



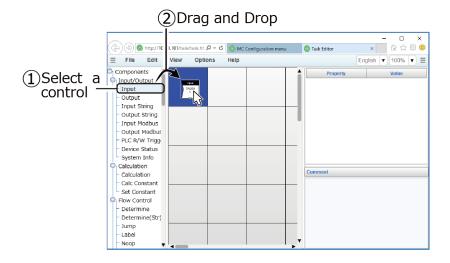
CONPROSYS VTC starts up to create a processing task.



4. Basic Procedure for Creating Processing Tasks

◆ Place Task Controls

- 1. Select a necessary task control from Control selection area.
- Drag and drop it onto the task setting area.



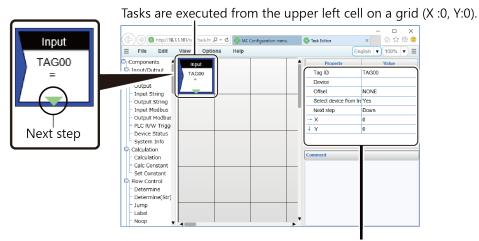
♦ Set Property

The property of placed controls is displayed on the property area.

Each control contains the parameter that represents a specific function and decides the direction (Next step) to execute the next task.

Tasks are executed from the upper left cell on a grid (X: 0, Y: 0). The next step to execute is determined by the direction set in the control.

If the next step is located outside of the page, the first task (0, 0) is proceeded.

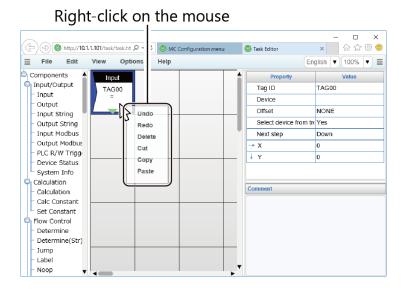


The placed controls are displayed on the property area.

* In this example, the processing is given to the following control after reading the data that is obtained from a device to TAG00.

Copy and Delete Controls

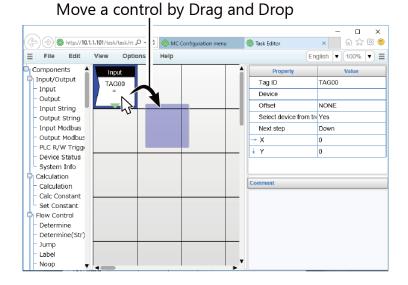
Right-click the placed control to show the editing menu. In this menu, such as coping or deleting controls can be performed.



Move Controls

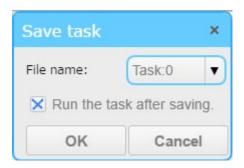
The placed control can be moved by drag and drop.

Create the tasks by following the procedure described above to place controls on the task setting area.



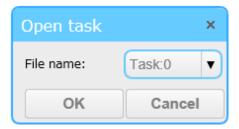
◆ Save a Task Processing

From Menu command, select the "File" – "Save task" to open a dialog to save the created task processing with the specified number.



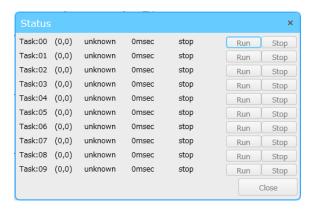
Open a Saved Task

From Menu command, select the "File" – "Open task" to open a dialog and select the number in the dialog to open a saved task.



♦ Run a Task Processing

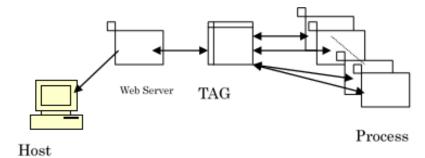
From Menu, go to "View" – "Status" and "Run" to apply the changes and run the task.



You can create executing tasks up to 20 that work simultaneously.

5. Internal Variables

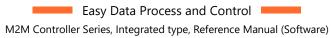
- The monitoring screens, task processing, and other operations can use TAGs that store numeric values and STAGs that store character strings.
- Data range is 1.7E +/- 308 (significant figures 15) for TAG, and up to 2048 byte can be used for STAG.
- The TAGs used by task processing are the same as the TAGs used in the monitoring screens.
- To log TAG value or when the value is converted to string, it is rounded off by the 4th decimal place.
- TAG values updated from the monitoring screen can be referenced in task processing.
- Task processing can use LTAGs (Local TAGs) in addition to standard TAGs.
- LTAGs are TAGs that can be used locally within individual tasks.
- Use LTAGs to prevent interference between TAG variables used in different tasks.
- The area of each LTAG is the same one as TAG, STAG's.



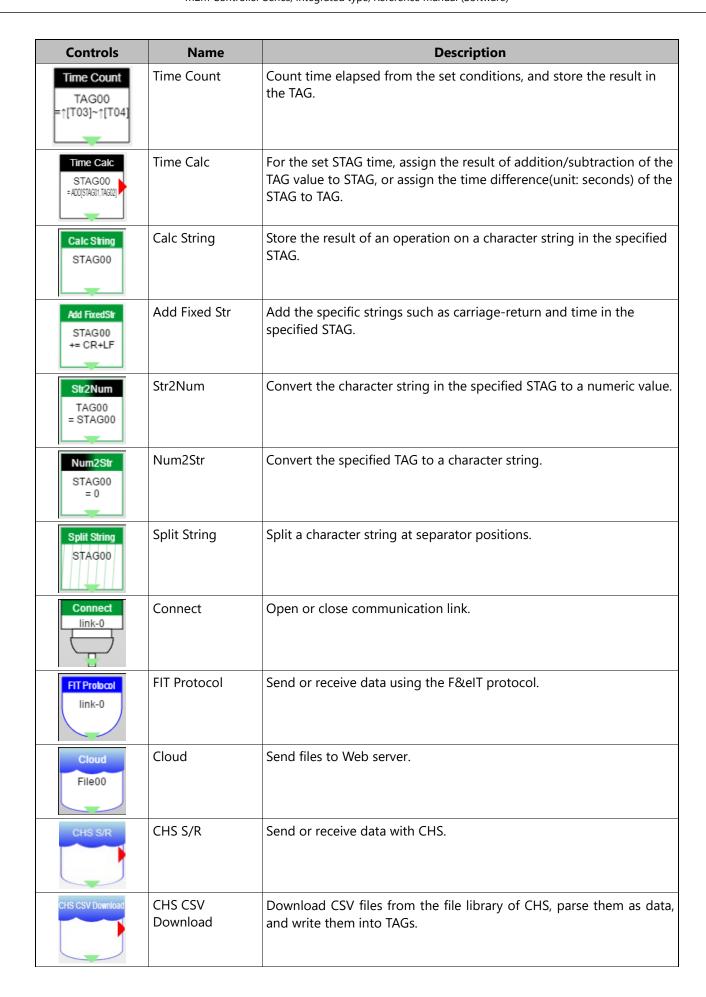
2. Summary of Available Controls

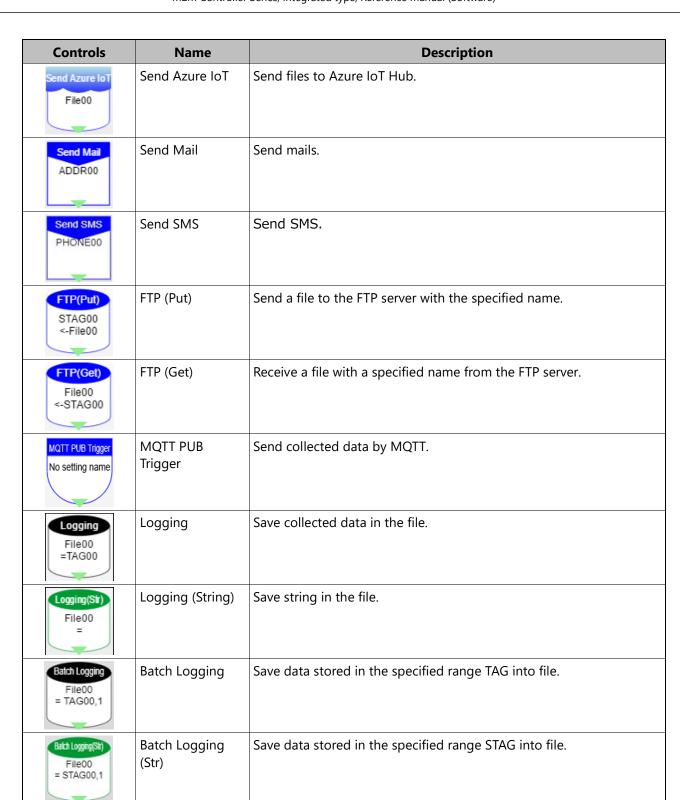
See the task controls below for task editing.

Controls	Name	Description
TAG00 D:0 C:0 B:0	Input	Input the value from the device to the specified TAG.
Output TAG00 D:0 C:0 B:0	Output	Output the value to device from the specified TAG.
STAG00 link-0	Input String	Input the string from the specified LINK to the specified STAG.
Output String STAG00 link-0	Output String	Output the string from the specified STAG to the specified LINK.
In FANUC CNC STAG00 =ProductName	In FANUC CNC	This control is specifically used to support FANUC CNC series. Get the value from CNC of FANUC and store to the TAG or STAG.
Device Status TAG00 = D:0 status	Device Status	Read the device status to the specified TAG.
System Info TAG00 =NTP Result	System Info	Store the system information to the specified TAG or STAG.
Output System Reboot	Output System	Execute a "reboot" or "shutdown" of the product.
Calculation TAG00 = TAG00+TAG01	Calculation	Calculate two TAG values.
Calc Formula TAG00	Calc formula	Define an arithmetic expression and substitute the result into the TAG.
TAG00 = TAG00+1	Calc Constant	Calculate the fixed value and TAG value.



Controls	Name	Description
Set Constant TAG00 = 0	Set Constant	Set constant value to the specified TAG.
TAG00 = T02+T03	Conditional Calc	Calculate only when the set conditions are satisfied.
TAG00 =CNT[T02,1]	Range Calc	Calculate TAG within the specified range.
TAG00	Determine	Conditional branch of the result from comparison between TAG value and the value.
STAG00	Determine (String)	Perform a comparison on the specified STAG.
goto LAB00	Jump	Jump order to the specified label or return from sub-routine.
Label LAB00	Label	Create a label. Set the destination point for a jump control.
	Noop	No operation. It is used to append a control to a control.
Subroutine SUB00	Subroutine	Call a selected subroutine and execute a process.
	Timer	Branch execution at the specified time.
Calendar 1	Calendar	Branch execution at the specified date or day of the week.
Wait 1 MSec	Wait	Delay execution for the specified time.





Obtain data from file and store them in the specified range TAG.

Obtain data from file.

File read

Batch Read

File read STAG00 =File00[0]

TAG00,1 = File00

Controls	Name	Description
STAG00,1 = File00	Batch Read (Str)	Obtain data from file and store them in the specified range STAG.
Copy File00->File01	File operation	Log File Action.

Refer to "Online Help" for the details of CONPROSYS VTC operation and functions.

Online Help https://doc.conprosys.com/help/task/V1/en/

3.Input/Output Module Allocation

Some of the task controls need to be specified directly with the hardware details such as Device IDs. The information differs depending on the products.

See the list of Input/Output module numbers related to the product.

- CPS-MC341-ADSC1-111
- CPS-MC341G-ADSC1-111
- CPS-MC341G-ADSC1-110

- CPS-MC341-ADSC2-111
- CPS-MC341Q-ADSC1-111
- CPS-MC341-ADSC1-931

Input Module	Device ID	Channel	Bit
DI-0	0	0	0
DI-1	0	0	1
DI-2	0	0	2
DI-3	0	0	3
AI-0	1	0	All
AI-1	1	1	All
CNT-0	2	0	All
CNT-1	2	1	All

Output Module	Device ID	Channel	Bit
DO-0	0	0	0
DO-1	0	0	1

- CPS-MC341-DS1-111
- CPS-MC341-DS2-111
- CPS-MC341-DS11-111

Input Module	Device ID	Channel	Bit
DI-0	0	0	0
DI-1	0	0	1
DI-2	0	0	2
DI-3	0	0	3
DI-4	0	0	4
DI-5	0	0	5
DI-6	0	0	6
DI-7	0	0	7

Output Module	Device ID	Channel	Bit
DO-0	0	0	0
DO-1	0	0	1
DO-2	0	0	2
DO-3	0	0	3
DO-4	0	0	4
DO-5	0	0	5
DO-6	0	0	6
DO-7	0	0	7

• CPS-MC341-A1-111

Input Module	Device ID	Channel	Bit
AI-0	0	0	All
AI-1	0	1	All
AI-2	0	2	All
AI-3	0	3	All
AI-4	0	4	All
AI-5	0	5	All
AI-6	0	6	All
AI-7	0	7	All

Output Module	Device ID	Channel	Bit
AO-0	0	0	All
AO-1	0	1	All

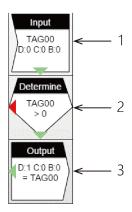
4.Sample

Listed below are samples of task processing.

Name	Description	Page
Sample (1)	If the value of the input data is non-zero, output the value to a different channel.	Page 137
Sample (2)	If the value of the input data is non-zero, increment the value and output to a different channel.	
Sample (3)	Send a data request ("REQ00") via serial communication and receive the reply data.	Page 142
Sample (4)	Check on the data received via serial communications.	Page 145
Sample (5)	Get bytes 5 to 10 of the data received via serial communications.	Page 147
Sample (6)	Increment the counter for the data received via serial communications by one.	
Sample (7)	Generate a packet based on the data received via serial communications (add a header) and send to a different host via socket communications.	
Sample (8)	The example is when the value of CNT-0 is saved in a file per minute in RAM and the file is transferred to Web server, then clear to 0	Page 158
Sample (9)	The example is when the value of DI00 is changed, send mail in accordance with the input.	Page 162
Sample (10)	Receive a file from and send it back to FTP server.	Page 165

1. Sample (1)

♦ If the value of the input data is non-zero, output the value to a different channel.



1 Read the data to TAG number 00.

Property	Value
Tag ID	TAG00
Device type	Input
Device ID	0
Channel	0
Bit	0
Select device from tree	No
Next step	Down
→ X	0
↓ Y	0

2 Go to the below step if the value of TAG number 00 is greater than zero. Otherwise, go to the step on the left. If a control goes outside the page, execution starts again from the initial instruction (0, 0).

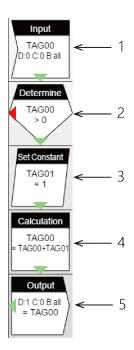
Property	Value
UsrValue	TAG00
Condition	>
Limit	Fixed Value
Fixed Value	0
True	Down
False	Left
→ X	0
↓ Y	1

3 Output the value in TAG number 00 to device 1, channel 0.

Property	Value
Tag ID	TAG00
Device type	Output
Device ID	1
Channel	0
Bit	0
Select device from tree	No
Next step	Left
→ X	0
↓ Y	2

2. Sample (2)

♦ If the value of the input data is non-zero, increment the value and output to a different channel.



1 Read the data to TAG number 00.

Property	Value
Tag ID	TAG00
Device type	Input
Device ID	0
Channel	0
Bit	all
Select device from tree	No
Next step	Down
→ X	0
↓ Y	0

2 Go to the below step if the value of TAG number 00 is greater than zero. Otherwise, go to the step on the left.

If a control goes outside the page, execution starts again from the initial instruction (0, 0).

Property	Value
UsrValue	TAG00
Condition	>
Limit	Fixed Value
Fixed Value	0
True	Down
False	Left
→ X	0
↓ Y	1

3 Set 1 to the TAG number 01 variables.

Property	Value
Tag ID	TAG01
Value	1
Next step	Down
→ X	0
↓ Y	2

4 The value of TAG number 00 is added to that of TAG number 01 and it is as 00.

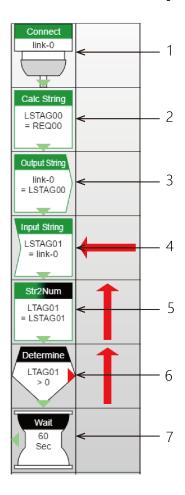
Property	Value
TargetValue =	TAG00
Value1	TAG00
(+-*/%)	+
Value2	TAG01
Next step	Down
→ X	0
↓ Y	3

5 Output the value in TAG number 00 to device 1, channel 0.

Property	Value
Tag ID	TAG00
Device type	Output
Device ID	1
Channel	0
Bit	all
Select device from tree	No
Next step	Left
→ X	0
↓ Y	4

3. Sample (3)

♦ Send a data request ("REQ00") via serial communication and receive the reply data.



1 Open the link.
This example opens Link No "Link-0".
Execution proceeds to the next step after completing "Open".

Property	Value
Link No	link-0
Connect	Connect
Action	Wait
Next step	Down
→ X	0
↓ Y	0

2 Set a string "REQ00" in LSTAG00.

Property	Value
TargetValue =	LSTAG00
Action	=
Str	Fixed Value
Fixed value (str)	REQ00
Next step	Down
→ X	0
↓ Y	1

Write (transfer) data to link.
Write data in LSTAG00 to Link-0.

Property	Value
Link No	link-0
Tag ID	LSTAG00
Next step	Down
→ X	0
↓ Y	2

4 Read (receive) data from link. Receive data from link-0 and save in LSTAG01.

Property	Value
Link No	link-0
Tag ID	LSTAG01
Next step	Down
→ X	0
↓ Y	3

5 Get the size of the received data. Set the data length of LSTAG01 in LTAG01.

Property	Value
TargetValue =	LTAG01
Action	Get length
Str	LSTAG01
Next step	Down
→ X	0
↓ Y	4

6 Check the data length.

If the received data length is greater than zero, go to the step below. Otherwise, branch to the right.

Property	Value
UsrValue	LTAG01
Condition	>
Limit	Fixed Value
Fixed Value	0
True	Down
False	Right
→ X	0
↓ Y	5

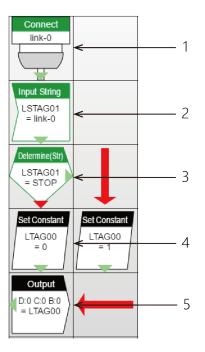
7 Wait for 60 seconds.

Property	Value
Wait time	Fixed Value
Fixed Value	60
Scale	Sec
Next step	Left
→ X	0
↓ Y	6

4. Sample (4)

♦ Check on the data received via serial communications.

Output "1" from a DO if the received string was "STOP".



1 Open the link.
This example opens Link No "Link-0".
Execution proceeds to the next step after completing "Open".

Property	Value
Link No	link-0
Connect	Connect
Action	Wait
Next step	Down
→ X	0
↓ Y	0

2 Read (receive) data from link. Receive data from link-0 and save in LSTAG01.

Property	Value
Link No	link-0
Tag ID	LSTAG01
Next step	Down
→ X	0
↓ Y	1

Check whether the string is correct.
Check whether the LSTAG01 string = "STOP".
If so, go to the step on the right. If not, go to the step below.

Property	Value
UsrValue	LSTAG01
Condition	=
Limit	Fixed Value
Fixed Value	STOP
True	Right
False	Down
→ X	0
↓ Y	2

4 Set value in TAG. Set LTAG00 to 1

Property	Value
Tag ID	LTAG00
Value	1
Next step	Down
→ X	1
↓ Y	3

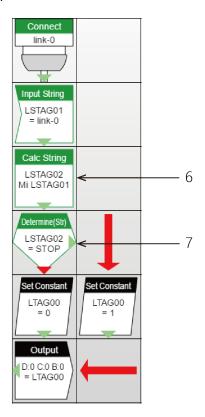
5 Output to device.

Property	Value
Tag ID	LTAG00
Device type	Output
Device ID	0
Channel	0
Bit	0
Select device from tree	No
Next step	Left
→ X	0
↓ Y	4

5. Sample (5)

♦ Get bytes 5 to 10 of the data received via serial communications.

Modify steps [6] and [7] from sample 4.



1 Get bytes 5 to 10 of the received data. From 5 bytes of data stored in LSTAG01, 10 bytes data is set to LSTAG02.

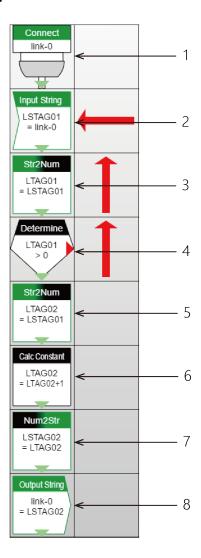
Property	Value
TargetValue =	LSTAG02
Action	Mid
Str	LSTAG01
Size	Fixed Value
Fixed value (size)	10
Offset	Fixed Value
Fixed value (offset)	5
Next step	Down
→ X	0
↓ Y	2

2 Check whether the character string is correct.
Check whether the LSTAG02 character string = "STOP".
If so, go to the step on the right. If not, go to the step below.

Property	Value
UsrValue	LSTAG02
Condition	=
Limit	Fixed Value
Fixed Value	STOP
True	Right
False	Down
→ X	0
↓ Y	3

6. Sample (6)

◆ Increment the counter for the data received via serial communications by one.



1 Open the link.
This example opens Link No "Link-0".
Execution proceeds to the next step after completing "Open".

Property	Value
Link No	link-0
Connect	Connect
Action	Wait
Next step	Down
→ X	0
↓ Y	0

2 Read (receive) data from link. Receive data from link-0 and save in LSTAG01.

Property	Value
Link No	link-0
Tag ID	LSTAG01
Next step	Down
→ X	0
↓ Y	1

3 Get the size of the received data. Set the data length of LSTAG01 in LTAG01.

Property	Value
TargetValue =	LTAG01
Action	Get length
Str	LSTAG01
Next step	Down
→ X	0
↓ Y	2

4 Check the data length.

If the received data length is greater than zero, go to the step below. Otherwise, branch to the right.

Property	Value
UsrValue	LTAG01
Condition	>
Limit	Fixed Value
Fixed Value	0
True	Down
False	Right
→ X	0
↓ Y	3

5 Convert the received data from ASCII characters to a numeric value. Convert the ASCII character data in LSTAG01, starting from byte 0, to a numeric value and save in LTAG02.

Property	Value
TargetValue =	LTAG02
Action	Ascii Str >> Number
Str	LSTAG01
Offset	Fixed Value
Fixed value (offset)	0
Next step	Down
→ X	0
↓ Y	4

6 Increment the numeric value by one. Add one to the LTAG02 value and save the result in LTAG02.

Property	Value
TargetValue =	LTAG02
Value	LTAG02
(+-*/%)	+
Constant	1
Next step	Down
→ X	0
↓ Y	5

7 Convert the numeric value to a string.
Convert the LTAG02 value to a string and save the result in LSTAG02.

Property	Value
TargetValue =	LSTAG02
Action	Number >> Ascii Str
Value	LTAG02
Next step	Down
→ X	0
↓ Y	6

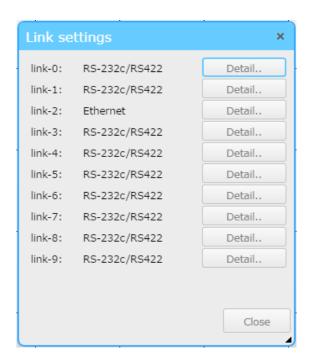
8 Write (transmit) data to link. Write data in LSTAG02 to Link-0.

Property	Value
Link No	link-0
Tag ID	LSTAG02
Next step	Down
→ X	0
↓ Y	7

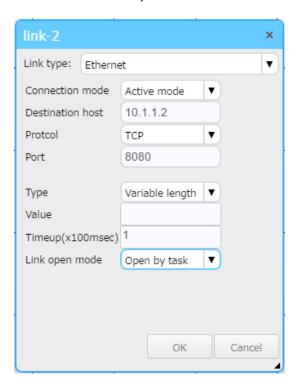
7. Sample (7)

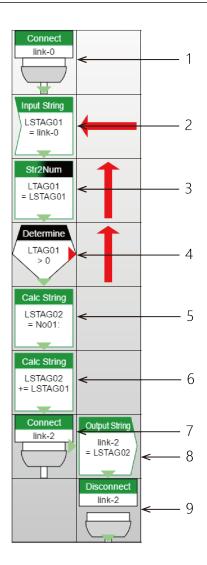
◆ Generate a packet based on the data received via serial communications (add a header) and send to a different host via socket communications.

Send the data received from Link-0 via the Link-2 Ethernet connection.



This example establishes a socket connection to port 8080 on host 10.1.1.2 and then sends the data.





1 Open the link.
This example opens Link No "Link-0".
Execution proceeds to the next step after completing "Open".

Property	Value
Link No	link-0
Connect	Connect
Action	Wait
Next step	Down
→ X	0
↓ Y	0

2 Read (receive) data from link. Receive data from link-0 and save in LSTAG01.

Property	Value
Link No	link-0
Tag ID	LSTAG01
Next step	Down
→ X	0
↓ Y	1

3 Get the size of the received data. Set the data length of LSTAG01 in LTAG01.

Property	Value
TargetValue =	LTAG01
Action	Get length
Str	LSTAG01
Next step	Down
→ X	0
↓ Y	2

4 Check the data length.

If the received data length is greater than zero, go to the step below. Otherwise, branch to the right.

Property	Value
UsrValue	LTAG01
Condition	>
Limit	Fixed Value
Fixed Value	0
True	Down
False	Right
→ X	0
↓ Y	3

5 Create the header. Insert the header "No01:" in LSTAG02.

Property	Value
TargetValue =	LSTAG02
Action	=
Str	Fixed Value
Fixed value (str)	No01:
Next step	Down
→ X	0
↓ Y	4

6 Append the received data to the header. Append LSTAG01 (the received data) to LSTAG02.

Property	Value
TargetValue =	LSTAG02
Action	+=
Str	LSTAG01
Next step	Down
→ X	0
↓ Y	5

7 Connect to (Open) the link. This example connects to (opens) Link No "Link-2". Execution proceeds to the next step after completing "Open".

Property	Value
Link No	link-2
Connect	Connect
Action	Wait
Next step	Right
→ X	0
↓ Y	6

Write (send) the data to the link.
Write the data in LSTAG02 to Link-2.

Property	Value
Link No	link-2
Tag ID	LSTAG02
Next step	Down
→ X	1
↓ Y	6

9 Close the link. This example closes Link No "Link-2". Execution proceeds to the next step after completing "Close".

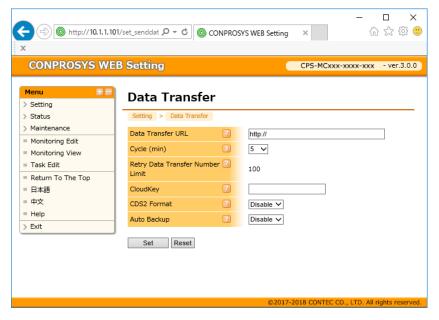
Property	Value
Link No	link-2
Connect	Disconnect
Action	Wait
Next step	Down
→ X	1
↓ Y	7

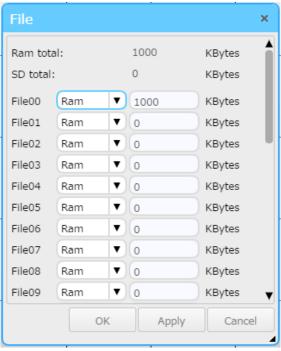
8. Sample (8)

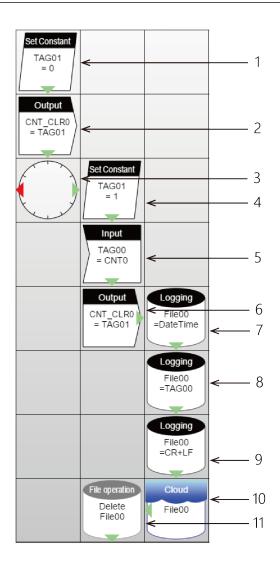
◆ The example is when the value of CNT-0 is saved in a file per minute in RAM and the file is transferred to Web server, then clear to 0.

Data is saved in a file in RAM

This example shows data transfer to Web server.







Set value that resets clear-register of CNT-0 to TAG1.

Property	Value
Tag ID	TAG01
Value	0
Next step	Down
→ X	0
↓ Y	0

2 Reset clear-register of CNT-0.

Property	Value
Tag ID	TAG01
Device	CNT_CLR0
Select device from tree	Yes
Next step	Down
→ X	0
↓ Y	1

3 One action per minute. In the example below, the following actions is conducted at 00 second per minute.

Property	Value
Hour	*
Min	*
Sec	00
Action	one time
True	Right
False	Left
→ X	0
↓ Y	2

4 The value to be set in TAG1 will be set upon CNT-0 clearing.

Property	Value
Tag ID	TAG01
Value	1
Next step	Down
→ X	1
↓ Y	2

5 CNT-0 value is read into TAG00.

Property	Value
Tag ID	TAG00
Device	CNT0
Select device from tree	Yes
Next step	Down
→ X	1
↓ Y	3

6 CNT-0 value is reset to 0.

Property	Value
Tag ID	TAG01
Device	CNT_CLR0
Select device from tree	Yes
Next step	Right
→ X	1
↓ Y	4

7 Date and Time data are added in File00.

Property	Value
Target file	File00
Value	DateTime
Next step	Down
→ X	2
↓ Y	4

8 CNT-0 data is added in File00.

Property	Value
Target file	File00
Value	TAG00
Next step	Down
→ X	2
↓ Y	5

9 Add a carriage-return to File00.

Property	Value
Target file	File00
Value	CR+LF
Next step	Down
→ X	2
↓ Y	6

10 Send File00 to Web server.

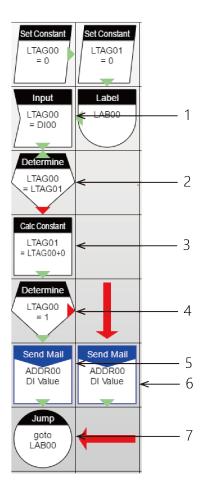
Property	Value
Target file	File00
Next step	Left
→ X	2
↓ Y	7

11 Delete File00.

Property	Value
Operation	Delete
From	File00
Next step	Down
→ X	1
↓ Y	7

9. Sample (9)

♦ Send a mail according to the input when DI00 value has been changed.



1 Enter DI00 value into LTAG00.

Property	Value
Tag ID	LTAG00
Device	DI00
Offset	NONE
Select device from tree	Yes
Next step	Down
→ X	0
↓ Y	1

2 Compare LTAG00 (current DI value) and LTAG01 (previously changed DIvalue). If the current value is changed, go to the step below. If it is the same, go up and get the DI value again.

Property	Value
UsrValue	LTAG00
Condition	-
Limit	LTAG01
True	Up
False	Down
+ X	0
Y	2

3 Update the LTAG01 (previously changed DI value).

Property	Value
UsrValue	LTAG00
Condition	=
Limit	Fixed Value
Fixed Value	1
True	Down
False	Right
→ X	0
↓ Y	4

4 Determine the changed DI value. Change the mail contents according to the result.

Property	Value
UsrValue	LTAG00
Condition	=
Limit	Fixed Value
Fixed Value	1
True	Down
False	Right
→ X	0
↓ Y	4

5 Send mail when DI00 is 1.

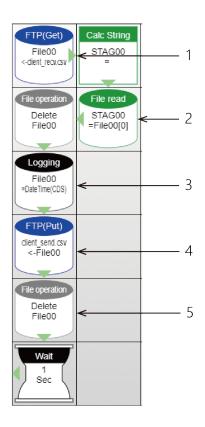
Property	Value
То	ADDR00
cc	NONE
BCC	NONE
Subject	Fixed Value
Fix value (Subject)	DI
Body	Fixed Value
Fix value (Body)	Change to 1
Attached	NONE
Next step	Down
→ X	0
↓ Y	5

6 Send mail when DI00 is 0.

Property	Value
То	ADDR00
CC	NONE
BCC	NONE
Subject	Fixed Value
Fix value (Subject)	DI
Body	Fixed Value
Fix value (Body)	Change to 0
Attached	NONE
Next step	Down
→ X	1
↓ Y	5

10. Sample (10)

♦ Receive a file from and send it back to FTP server.



1 Get client_recv.csv from the server and set it into File00.

Property	Value
Destination file	File00
Target file name	Fixed Value
Fixed Value	client_recv.csv
Next step	Right
→ X	0
↓ Y	0

2 Set the File00 [0] into STAG00.

Property	Value
Target file	File00
Row number	Fixed Value
Fixed Value	0
Read buffer	STAG00
Next step	Left
→ X	1
↓ Y	1

3 Write DateTime (CDS) into File00.

Property	Value
Target file	File00
Value	DateTime(CDS)
Append char	CR+LF
Next step	Down
→ X	0
↓ Y	2

4 Send the File00 as client_send.csv to the server.

Property	Value
Destination file name	Fixed Value
Fixed Value	client_send.csv
Target file	File00
Next step	Down
→ X	0
↓ Y	3

5 Delete the File00.

Property	Value
Operation	Delete
From	File00
Next step	Down
→ X	0
↓ Y	4

Monitoring Edit

This section describes the CONPROSYS HMI (Human Machine Interface), with which you can create a monitoring screen through a web browser and check the operations, errors, or standstill in the facilities.

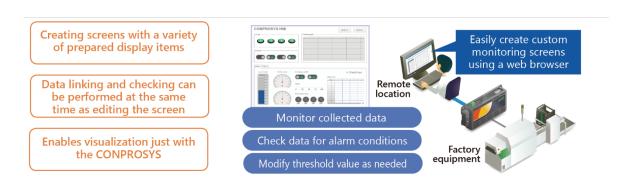
1.CONPROSYS HMI Outline

1. What You Can Do With CONPROSYS HMI

Place the supplied controls on the page and create a monitoring screen. Input signal status can be monitored on the screen. The screen can be created through a Web browser.

Neither the knowledge of language programming nor the special development environment is necessary. Just drag and drop a number of controls on the page to create the screen.

Control settings or linking data with a sensor can be done on the property screen.



— Device setting, data saving, and script debugging are completed with a Web browser —

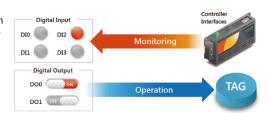
Support multiple platforms (Windows, Android)



The screen above is the image when creating the monitoring screen The factory default setting is a white background.

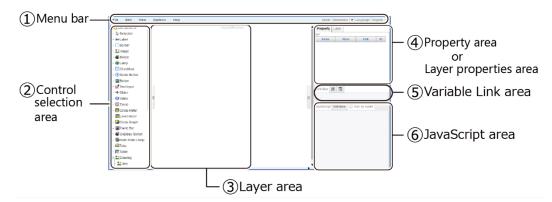
Data linking with CONPROSYS VTC

It is possible to use internal variables (TAGs) to link with CONPROSYS VTC. This makes it possible to display the results of processing with VTC and to apply the HMI operations to VTC flow control.



2. HMI Editor Work Areas

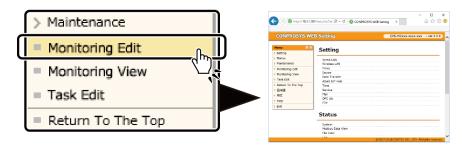
HMI Editor has the following work areas.



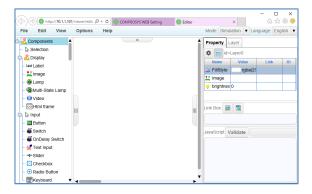
No.	Name	Function
1	Menu bar	The menu bar is used to execute commands with menu buttons.
2	Control selection area	Select the controls to place on the layer area.
3	Layer area	This area is where the page is designed.
4	Properties area	Modify the property variables of controls on this area.
	Layer properties area	Add or delete layers, and modify layer properties on this area.
5	Variable Link area	This area is for linking control properties and variables.
6	JavaScript area	This area is used to configure the behavior of JavaScript for controls.

3. Create a Monitoring Screen

From the CONPROSYS WEB Setting, click the [Monitoring edit].



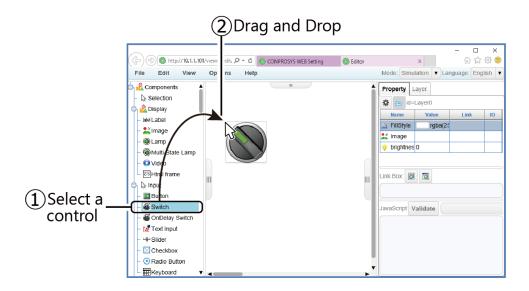
CONPROSYS HMI starts up and you can create the monitoring screen.



4. Basic Procedure for Creating a Monitoring Screen

Place a Control

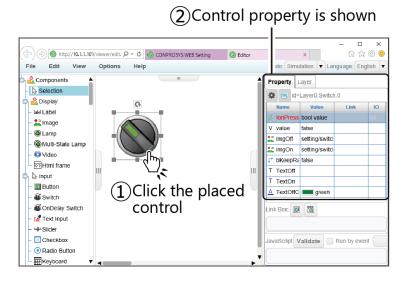
(1) Select a control from the Components tree displayed on the left. (2) Drag and drop it on the Layer area.



♦ Configure the Properties of Controls

(1)Click the placed control. (2)The property of the control is shown in the "Property" on the right side of the screen.

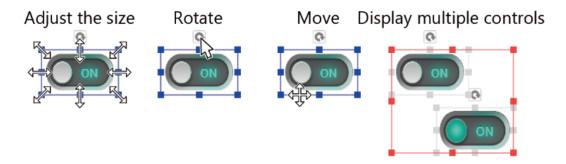
The properties area allows you to change the values, set the data to link with I/O devices or other controls.



◆ Align the Position or Adjust the Size of Controls

Click the placed control to activate. Drag the border to change the position, adjust the size or the angle.

Controls can be selected together and changed or adjusted simultaneously.



♦ Copy and Delete Controls

Right-click the activated control to show the editing menu. In this menu, such as coping or deleting controls can be performed.

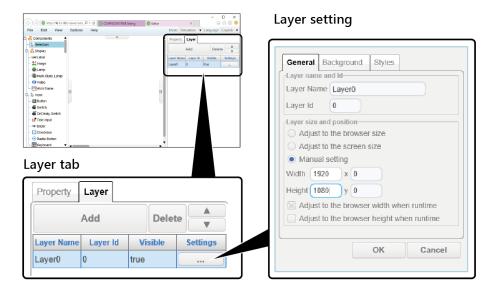


♦ Configure the Layer

Select "Layer" tab at the upper right on the screen to open the layer properties.

In the "Settings" of the layer properties area, click the [...] button to open the dialog box.

You can set a size of monitoring screen or the background here.

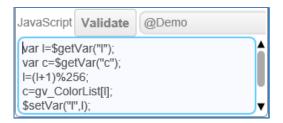


◆ JavaScript

You can enter code using JavaScript as necessary.

If a particular control logic is needed to run the system, code the behaviors of the system using JavaScript in "JavaScript" area.

Refer to "Online Help" for usable JavaScript functions for each control.

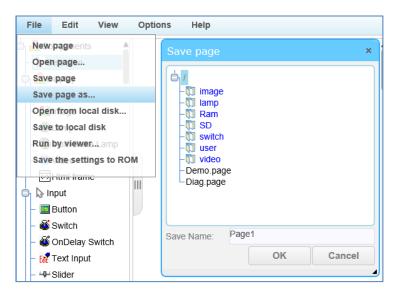


Save the Settings to ROM.

After creating the monitoring screen, save the file with a new name.

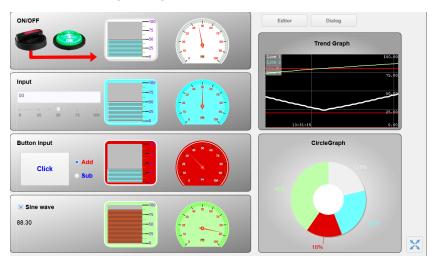
After saving, perform "Save to ROM" in [File] before shutting down the power.

* If you do not save the settings to ROM, the contents return to those before setting upon rebooting or shutting down.



Display the Created Screens

From WEB menu, click the "Monitoring view" in "Status menu" and the monitoring screen appears. The page that is saved in "user/Page1.page" on the monitor can be viewed.



*When viewing the screen with a specific name, specify the URL listed below through a browser.

http://<IP address>:<port number>/viewer/view.htm?pagepath=<page file
path>&lang=<language>

- <Page file path>: Specify a name of the page. An example: /user/Page1.page
- <Language>: Specify the language to view. An example: jp indicates Japanese. Specifying the language can be omitted.

2. Summary of Available Controls

CONPROSYS HMI provides the following controls.

Control	Name	Description
Label	Label	This control displays a string.
	Border	This control is a border with a title.
**	Image	This control displays an image.
6	Switch	This control is a switch that can output an ON/OFF status.
(a)	Lamp	This control is a lamp that can display an ON/OFF status.
\boxtimes	Checkbox	This control is a checkbox that can output an ON/OFF status and display a string.
•	Radio Button	This control is a radio button to select a single condition from multiple conditions.
Etn	Button	This control is a clickable button that displays a text string.
Edit	Text Input	This control is used to input and display text.
∸Ф ∸	Slider	This control is used to output data with a slider.
	Video	This control is used to play videos.
	Trend	This control is used to display chronological data as a graph.
<u>~</u>	Circle Meter	This control is used to display data as a circle meter.
Ti+le	Level Meter	This control is used to display data as a level meter.
<u></u>	Circle Graph	This control is used to display data as a circle graph.
7	Trend Bar	This control is used to display data as trend lines or bars.
6	OnDelay Switch	This control is a switch that can output an ON/OFF status after being pressed in specified seconds.
©	Multi-State Lamp	This control is a lamp that can display multiple differing status values.
<u>C</u>	Timer	This control is used to keep counting between the maximum value and the minimum value periodically.
1	Calendar	This control is used to display and set the date.
()	Clock	This control is used to display the current time.
	Drop-down List	This control is used to display the value in drop-down list format.
	Keyboard	This control is used to display and inputs the value in software keyboard format.
1	Number to Color	This control is used to convert a number to a color string.
Ы†	Number to Bits	This control is used to convert numbers and binary values.
	Tabs	This control is used to create multiple tabs that can be displayed by switching.
	Table	This control is used to display data in table format.
(/)	Html frame	This control is used to display another Html document in the frame.
i =	List	This control is used to display data by a list.
/	Line	This control is used to draw a line on the page.

Control	Name	Description	
\sim	Polyline	This control is used to draw a polyline on the page.	
\sim	Bezier Curve	This control is used to draw a Bezier curve on the page.	
	Rectangle	This control is used to draw a rectangle on the page.	
	Round Rectangle	This control is used to draw a rounded rectangle on the page.	
Δ	Polygon	This control is used to draw a polygon on the page.	
0	Ellipse	This control is used to draw a circle or ellipse on the page.	
2	Pipe	This control is used to draw a pipe-style continuous line on the page.	

Refer to "Online Help" for the details of CONPROSYS HMI operation and functions.

Online Help https://doc.conprosys.com/help/hmi/V1/en/

3.Internal Variables Specification

The internal variables that can be used for CONPROSYS HMI are listed below.

Common Variables

Variable name	Туре	Access	Data range	Description
TAG00- TAG499	Value	read/write	1.7E +/- 308 significant figures: 15	It is the range for keep values. When TAG value is obtained in HMI, it is rounded off by the 4th decimal place.
STAG00- STAG499	String	read/write	2048 byte	It is the range for keep strings. The character code is UTF8.

- CPS-MC341-ADSC1-111
- CPS-MC341G-ADSC1-111
- CPS-MC341G-ADSC1-110

- CPS-MC341-ADSC2-111
- CPS-MC341Q-ADSC1-111
- CPS-MC341-ADSC1-931

Variable name	Туре	Access	Data range	Description
DI00-DI03	Device	read	0 - 1	The value of digital input 0-3 bits.
DO00-DO01	Device	read/write	0 - 1	The value of digital output 0-1bits.
AI0-AI1	Device	read	0 - 4095	The value of analog input 0-1 channels (LSB)
CNT0-CNT1	Device	read	0 - 16777215	The value of counter 0-1 channels.
CNT_CLR0- CNT_CLR1	Device	read/write	0 - 1	The clear flag of counter 0-1 channels.
ProductName *1	FANUC_CNC	read	Rely on a DPRNT content prescribed in the CNC program.	The name of the parts processed by machine.
ProductResult Number *1	FANUC_CNC	read	Rely on a DPRNT content prescribed in the CNC program.	The total number of parts processed by machine.
Value01- Value10 *1	FANUC_CNC	read	Rely on a DPRNT content prescribed in the CNC program.	These nodes can store value data in any type (10).
String01- String10 *1	FANUC_CNC	read	Rely on a DPRNT content prescribed in the CNC program.	These nodes can store string data in any type (10).
PrintOutput *1	FANUC_CNC	read	Rely on a DPRNT content prescribed in the CNC program.	Store several string data of the DPRNT contents with commas (,).

^{*1} Only available with the product MT Connect controller.

• CPS-MC341-DS1-111

• CPS-MC341-DS2-111

• CPS-MC341-DS11-111

Variable name	Туре	Access	Data range	Description
DI00-DI07	Device	read	0 - 1	The value of digital input 0-7bits.
DO00-DO07	Device	read/write	0 - 1	The value of digital output 0-7bits.

• CPS-MC341-A1-111

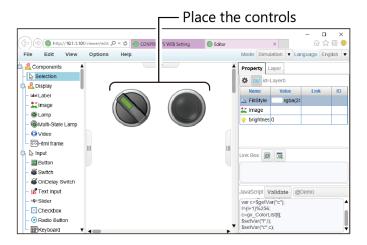
Variable name	Туре	Access	Data range	Description
AI00-AI07	Device	read	0 - 65535	The value of analog input 0-7channels.
AO00-AO01	Device	read/write	0 - 65535	The value of analog output 0-1channels.

4.Sample

1. Sample of Input / Output Monitoring Screen.

This section describes how to create an example screen of "Display digital input status" and "Display and Control digital output status".

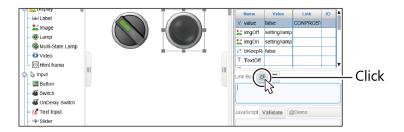
1 From the control tree, drag the switch and the lamp, then drop them onto the layer area.



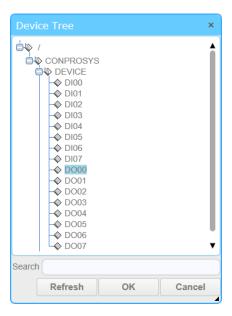
- **2** To digital output, link the switch with device "DO00".
- Click the switch to activate and then select the line of "!onPressed" from the property.



• Click the left button of [Link] to show the "Device Tree" window.



• The list of usable devices are displayed. Simply selecting the device from the list can link data. Choose "DO00" from the Device Tree and click the [OK].



Select [Run] in the [Mode:] at the right side of the Menu, input/output with the device and link with the processing task begin.

With the [Simulation] remained selected, input/output with the device or link with proceeding task will not be applied. This only links the controls.

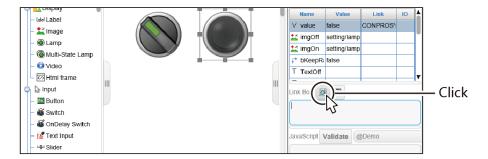


Above completes the setting. Output condition of DO00 is switched in accordance with the "value" of the switch by clicking the switch.

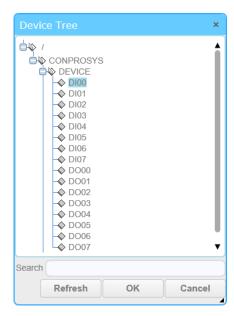
- **4** To digital input, link the lamp with the device "DIO00" by following the procedure described in the digital output.
- Click the lamp to activate and then select the line of "value" from the property.



• Click the left button at [Link] to show the "Device Tree" window.



• Choose "DI00" from the Device Tree and click the [OK].



Input status of DI00 are displayed to the lamp.

This condition is updated regularly. You can change the updating cycle in [Options] menu.

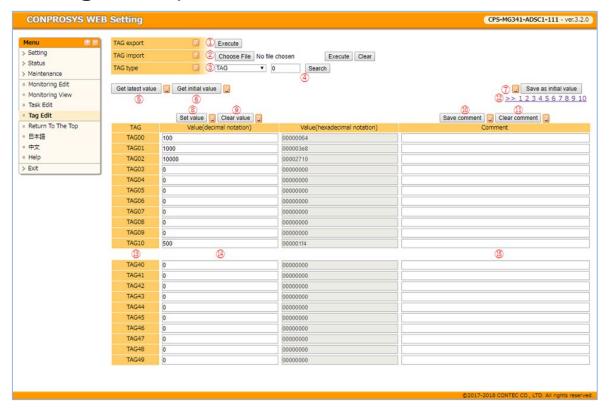
Tag Edit

This section describes Tag Edit page. With this function, monitoring TAG/STAG/LTAG/LSTAG, editing their initial values, and TAG import/export in CSV format file can be executed.

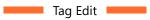
1. Overview of Tag Edit

1. Tag Edit Page

♦ Edit Page <TAG, LTAG>



No.	Name	Function
1	TAG export	This outputs TAG value, comment, and display format on the displayed page in csv format, then download to the local host.
2	TAG import	Click the "choose file" button and select a csv file to import.
3	TAG type	Select TAG type to be displayed. The page is displayed in accordance with the selected TAG type as the type changes.
4	Search	Enter a tag number and click the "Search" button. This displays the specified number as the starting TAG on the page.
5	Get latest value	This gets the latest value of the selected TAG type and changes it in the specified display format and updates the Value column.
6	Get initial value	This displays the initial value according to the selected TAG type. When the value is not set, or the value does not exist, "0" for TAG/LTAG and "null character" for STAG/LSTAG will be displayed respectively.
7	Save as initial value	This saves data displayed on the "Value" and the "Comment" columns as initial values of TAG. The specified display format is also saved and decided to be the default display format for "Get initial value, Switch TAG types, Switch pages, and TAG Search".



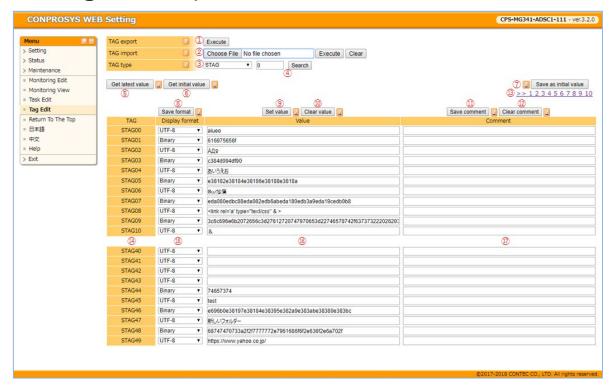
No.	Name	Function	
8	Set value	This sets the contents displayed in the "Value" column as the present value (the latest value) of TAG.	
9	Clear value	This clears all the contents displayed in the "Value" column. The value after clearing becomes 0.	
10	Save comment	This saves the contents displayed in the "Comment" column.	
11	Clear comment	This clears all the contents displayed in the "Comment" column.	
12	Switch page	Press the ">>" to switch the present 50 tags to the next 50 tags.	
13	The number of display TAGs	50 tags can be viewed at one time.	
14	Value	According to the display format, values can be entered by text-inputting. *1	
15	Comment	Comments can be entered by text-inputting. (Up to 20 characters can be entered) The edited comments will be displayed in HMI tree when TAG of VTC is selected.	

*1

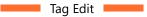
TAG type	Display format	Input range	Available characters
TAG or LTAG	Decimal	1.7e±308 The number of significant figures is 15. However, the fourth decimal place and below are rounded off, and the value actually reflected to TAG is up to the third decimal place.	0-9, ., +, -, e, E
	Hexadecimal	0- FFFFFFFF In integer notation, use FFFFFFFF for those exceeding the above range.	0-9, A-F, a-f However, it is unable to edit directly.

Tag Edit

◆ Edit Page <STAG, LSTAG>



No.	Name	Function	
1	TAG export	This outputs TAG value, comment, and display format on the displayed page in csv format, then download to the local host.	
2	TAG import	Click the "choose file" button and select a csv file to import.	
3	TAG type	Select TAG type to be displayed. The page will be displayed in accordance with the selected TAG type as the type changes.	
4	Search	Enter a tag number and click the "Search" button. This displays the specified number as the starting TAG on the page.	
5	Get latest value	This gets the latest value of the selected TAG type and changes it in the specified display format and updates the Value column.	
6	Get initial value	This displays the initial value according to the selected TAG type. When the value is not set, or the value does not exist, "0" for TAG/LTAG and "null character" for STAG/LSTAG will be displayed respectively.	
7	Save as initial value	This saves data displayed on the "Value" and the "Comment" columns as initial values of TAG. The specified display format is also saved and decided to be the default display format for "Get initial value, Switch TAG types, Switch pages, and TAG Search".	
8	Save format	Click the button to save the selected display format. The format saved in this function is decided to be the default display format for "Get initial value, Switch TAG types, Switch pages, and TAG Search". When the display format is changed and the TAG has the initial value settings, it is converted and saved according to the selected display format.	



No.	Name	Function	
9	Set value	This sets the contents displayed in the "Value" column as the present value (the latest value) of TAG.	
10	Clear value	This clears all the contents displayed in the "Value" column. The value after clearing becomes 0.	
11	Save comment	This saves the contents displayed in the "Comment" column.	
12	Clear comment	This clears all the contents displayed in the "Comment" column.	
13	Switch page	Press the ">>" to switch the present 50 tags to the next 50 tags.	
14	The number of display TAGs	50 tags can be viewed at one time.	
15	Display format	Select a data display format of TAG. The selectable formats are UTF-8 or Binary.	
16	Value	Values can be entered by text-inputting according to the display format. *1	
17	Comment	Comments can be entered by text-inputting. (Up to 20 characters can be entered) The edited comments will be displayed in HMI tree when TAG of VTC is selected.	

*1

TAG type	Display format	Input range	Available characters
CTAC and CTAC	UTF-8	Up to 2048 bytes	No restriction
STAG or LSTAG	Binary	Up to 2048 bytes (Little Endian)	0-9, A-F, a-f, Space

2. TAG Export/Import

The details of TAG export and import are described here.

◆ TAG Export

This outputs TAG value, comment, and display format on the displayed page in csv format (characters, terminal symbol: crlf with utf-8-bom) then download to the local host.

The name of the file to be exported is formatted in "yyyymmddhhss_TAG number_setting.csv".

An example)201903261520_STAG00_49_setting.csv / 201903261520_LTAG50_99_TASK10_setting.csv"

◆ TAG Import

Click the "choose file" button and select a csv file to import. The name of the file is arbitrary.

After selecting the file, click the "Execute" button to start importing.

After selecting the file, click the "Clear" button to clear the selected state of the import file.

Note that the followings are checked before executing import. The causing factors will be displayed if importing is determined to be unable to execute.

- Adequacy of the import data (whether it contains wrong format)
- Parallel run check (whether the import is already in progress)

Import reads the uploaded file (csv) and reflects each value in the following.

- The TAG value is written to the value of each TAG stored in the shared memory (interpretation of the value upon writing conforms to the display format in csv).
- Write comments to the comment area saved in temporary settings
- Write display formats to the display format saved in temporary settings

Tag Edit ———

-Excel



Example 1) Exporting when displaying TAG00-49 (on the first page)

-Text Editor
TagName, DispFormat, Value, Comment
TAG00,,255,"""TAG00コメント"""
TAG01,,1024,"""TAG01こめんと"""
~
TAG49,,-10,"""comment"""

TagName	DispFormat	Value		Comment
TAG00			255	"TAG00 comment"
TAG01			1024	"TAG01 comment"
~				
TAG49			-10	"comment"

Name	Description			
TagName	TAG name. Set TAG name to set data.			
	(Formats are TAG*/STAG*/LTAG*-TASK*/LSTAG*-TASK*)			
DispFormat	Display format (UTF-8/Binary). Use this to interpret string data.			
	Use STAG/LSTAG only. Set 0 for UTF-8, and 1 for Binary.			
	Set "null character" for TAG/LTAG. (See Example 1)			
Value	TAG value. Set a setting value for TAG.			
As for a string (including Binary data), enclose it with double quotati				
Comment	Set a setting comment for TAG. Set a setting comment for TAG. Enclose it with			
	double quotation marks.			

Example 2) Exporting when displaying LSTAG50-99-TASK10 (on the second page)

```
TagName,DispFormat,Value,Comment
LSTAG50-TASK10,0,"""あいうえお""","""テストコメント"""
LSTAG51-TASK10,1,"""e38182e38184e38186e38188e3818a""","""Binary保存テスト"""
~
LSTAG99-TASK10,0,"""⊗診療""","""4byte文字ですと"""
```

Example 3) Importing such data as the following can be executed. (missing or mixed in a random order))

```
STAG400,0,"""インポートテスト""",
TAG45,,1.14,"""こめんと"""
TAG03,,-1,"""ff"""
LSTAG80-TASK19,1,"""616975656f""","""aiueo"""
```

Example 4) Importing including such data as following cannot be executed.

A CAUTION

TAG initial value settings

The contents of the initial settings are executed when starting the CONPROSYS. Therefore, the more contents in the settings, the longer the start-up time may take.

TAG import

In order to properly recognize the character code, CSV files must have UTF-8 BOM. When editing on Windows Excel, it is necessary to save as "CSV UTF-8 (separate with a comma)" as shown in the following figure.

- Importing cannot be executed with a CSV file saved directly.
- The format of CSV to import

Data should be entered in order as follows;

"TAG name, Display format, TAG value, Comment"

Importing fails when the order is wrong or data is insufficient.

Note that the line "TagName DispFormat Value Comment" given to the starting of the exported data is an explanatory line that indicates the order of data entry, therefore it is not a problem if the line does not appear at the time of importing.

The TAG name should be a configurable TAG.

The followings are considered as the cause of failure

- TAG or TASK number exceeds the limitation
- String is used instead of TAG value for TAG/LTAG
- Elements such as "TAG name, Display format, TAG value, or Comment" are missing
- Elements other than "TAG name, Display format, TAG value, or Comment" are set
- Other than "0" and "1" are set in display format for STAG / LSTAG
- No data in CSV that can be imported (including CSV with an explanation line only)

Transferring Measured Data to Server

This section describes how to transfer measured data to Web server.

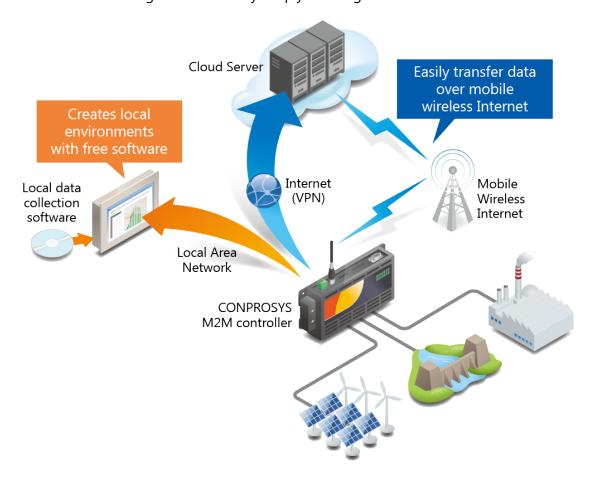
1. Data Transfer Outline

Measured data can be transferred to Web server from the product.

Even if wired networks are unavailable in the facilities, our product with 3G communication provides the function to transfer data via mobile line.

Data can be collected easily with on-premises data collecting software.

Data transfer setting can be done by simply entering a server address.



2. Settings for Transferring Measured Data.

To transfer measured data to Web server from the product, set the followings in CONPROSYS WEB Setting.

- Data Transfer Setting
- Service setting
- Time*1
- Network setting
- Wireless LAN setting*2
- SIM card *3
- *1: The following models have no built-in battery and need to set the name of NTP server that obtains the date and time.

```
(CPS-MC341-ADSC1-111, CPS-MC341-ADSC2-111, CPS-MC341G-ADSC1-110, CPS-MC341-DS1-111, CPS-MC341-DS11-111, and CPS-MC341-A1-111).
```

- *2: Not available with CPS-MC341-DS1-111, CPS-MC341-DS2-911, or CPS-MC341-A1-111.
- *3: Available with CPS-MC341G-ADSC1-110.

^{*}After setting the above, save them to ROM and reboot the product.

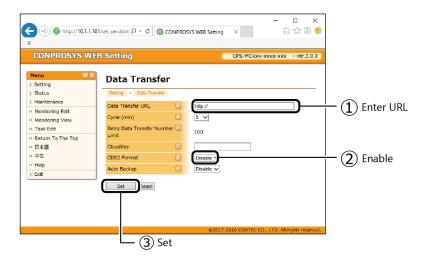
3. Data Transfer Setting

1. Data Transfer

Set up the transfer destination of the measured data in [Data transfer] setting of CONPROSYS WEB Setting.

If you are sending data to CONTEC cloud service CDS2. (1) Enter URL* in the "Data transfer URL". (2) Select CDS2 format [Enable]. (3) Click the [set].

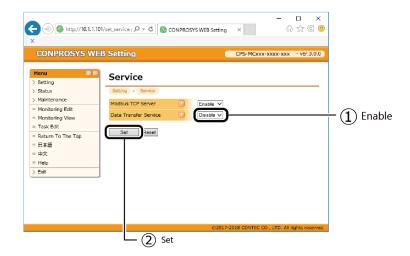
* As for Data transfer URL, enter the "Measured data upload URL" that is listed on the mail sent after completing CDS2 contract. The CDS2 is the service for Japan domestic only.



2. Service

Set up the service setting in CONPROSYS WEB Setting.

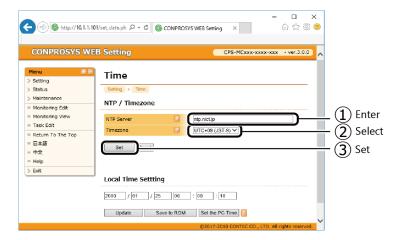
(1) Click the [Enable] in the "Data transfer service". (2) Then click the "set".



3. Time

Set NTP Server and Time Zone in [Time] in CONPROSYS WEB Setting.

(1) Enter the address of "NTP Sever". (2) In [Time Zone], set a time difference between UTC (Universal Time, Coordinated) and the time of the local region where the product is used. (3) Click the [set].



4. Network Setting

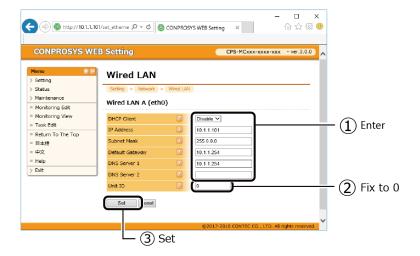
* This setting is unnecessary when using the wireless LAN adapter.

♦ Wired LAN

First, set up the network setting in [Wired LAN] in CONPROSYS WEB Setting.

Follow your network environment, (1) Enter the appropriate settings for DHCP Client, IP Address, Subnet Mask, Default Gateway, DNS Sever1, and DNS Sever2.

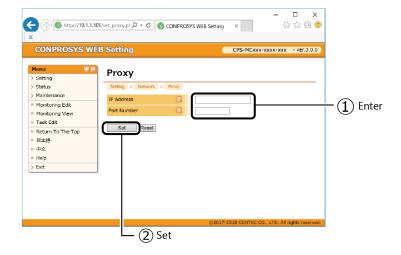
- (2) Enter 0 in "Unit id" and do not change it in operation.
- (3) Click the [set].



Proxy

Next, set up the network setting in in [Proxy] CONPROSYS WEB Setting.

(1) Enter Proxy Sever IP Address and Proxy Sever Port Number. (2) Click the [set].



5. Wireless LAN

* Not available with CPS-MC341-DS1-111, CPS-MC341-DS2-911, or CPS-MC341-A1-111 as they do not contain USB port.

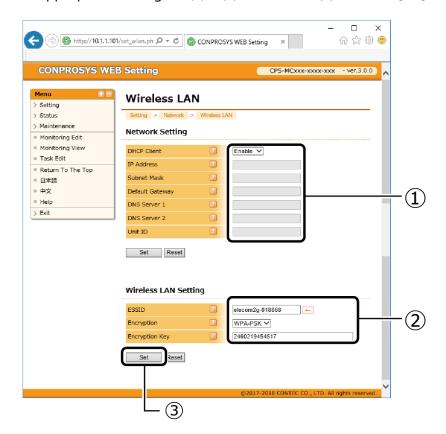
Set up the wireless LAN setting in CONPROSYS WEB Setting.

The display of the opened page differs depending on CONPROSYS condition.

 When a USB wireless LAN adapter is not connected to CONPROSYS or an unsuitable USB wireless LAN adapter is connected to CONPROSYS.



When a suitable USB wireless LAN adapter is connected to CONPROSYS.
 Enter or choose appropriate setting for (1) – (2) to connect. (3) Click the [set].



Scan access points in the area and when AP exists, $[\leftarrow]$ button is displayed. Click the button to open the list of ESSIDs. Choose one from the list and it is entered automatically in the form.

Compatible USB wireless LAN adapter

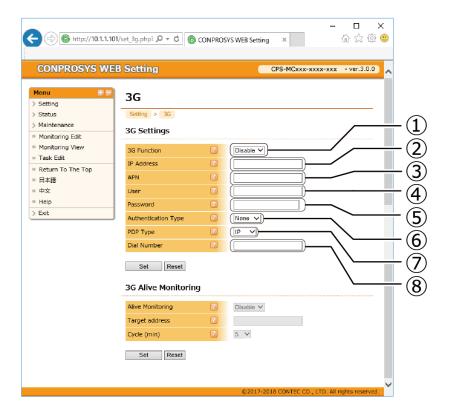
Vender	Product	
D-Link	DWA-125 REV D1	
D-Link	DWA-123 REV D1	
D-Link	GO-USB-N150 REV B1	
Elecom	WDC-150SU2M	
TP-LINK	TL-WN725N v2	
TP-LINK	TL-WN723N v3	
TP-LINK	TL-WN727N v4	
Sitecom	N150 v2	

6. 3G

*Set up this setting when transferring data via 3G network with CPS-MC341G-ADSC1-110.

Set up the SIM card setting in [3G] in CONPROSYS WEB Setting.

Enter the necessary information in No.1 - 8 and click the "set".



• An example with a SORACOM SIM card.

No.	Setting	Setting
1	3G	Enable
2	IP Address	0.0.0.0 (Default)
3	APN	soracom.io
4	User	soar
5	Password	sora
6	Authentication Type	СНАР
7	PDP Type	IP
8	Dial Number	Blank (Default)

Using the product as OPC UA Sever

This section describes how to set up OPC UA server.

The list of the product with OPC UA server

CPS-MC341-ADSC1-931

1.OPC UA Client Preparation and Communication

In this section, we use the "OPC UA Client Package" supplied by Softing as the OPC UA client software.

OPC UA Client Preparation

1 Access to the following URL and download the free package of OPC UA Client Package.

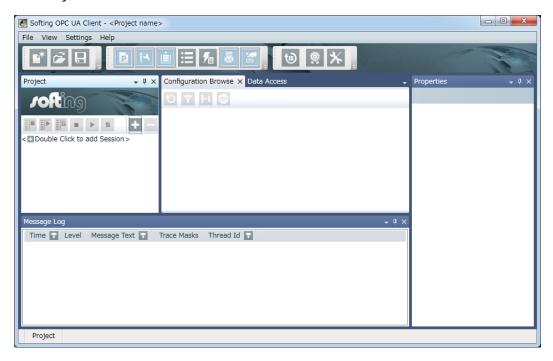
Download

https://industrial.softing.com/en/products/protocol-software-and-sdks/opc-ua-embedded-toolkit.html

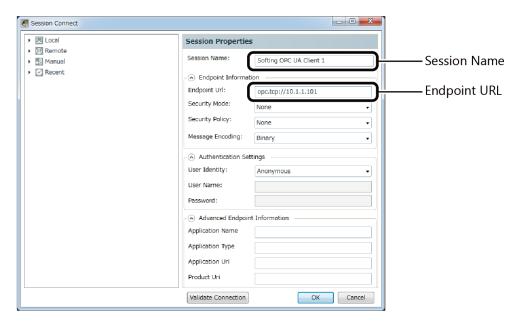
- * The latest version is "OPC UA Demo Client Package V1.46.0 (Free of Charge, Unlimited Runtime)" as of April, 2019.
 - 2 Install the downloaded OPC UA Client Package.

2. Communication With OPC UA Client

1 Start up OPC UA Client Package and double-click the "Double Click to add Session" in the Project window.



2 Enter a session name in the "Session Name" and enter "opc.tcp://10.1.1.101" in "Endpoint Url". (As for the 10.1.1.101 part, enter the same IP address that is set in the product).

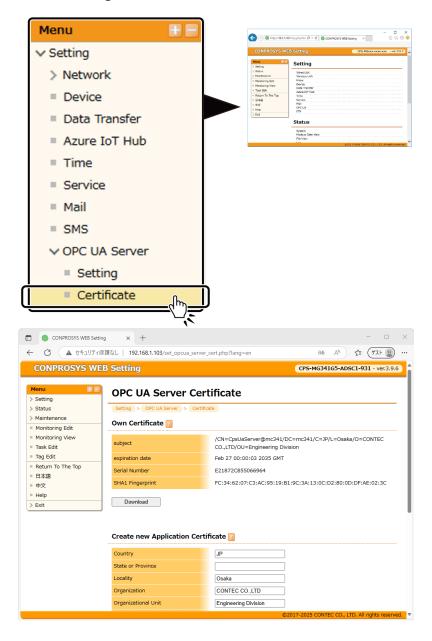


- **3** Click the [Validate Connection].
- 4 The Certificate Validation dialog box appears. From the Certificate Approval, select the [Add Certificate to Trusted Store] or [Temporarily Accept the Certificate] and click the [OK].
 - * If you select the [Temporarily Accept the Certificate], the same dialog box appears next time as well.
- **5** Confirm that the green icon of check mark is shown next to [Validate Connection] button and click the [OK].
- **6** On the Configuration Browse window, the list of OPC UA server nodes of the product is displayed. The I/O nodes of the product are listed under the "Objects/CONTEC/CPS-MC341-ADSC1/".
- When an I/O node is selected, data value (Value), status (StatusCode), and timestamp (SourceTimestamp/ServerTimestamp) are displayed on the property window. To change the value of output, change the value in the Value and click the [Write].

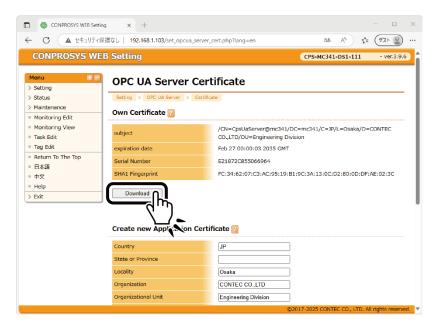
2. Download OPC UA Sever Certificate

To establish a session, some OPC UA clients might require the OPC UA server certificate (application certificate) of the server. If the installation of the certificate to the specified folder of the client software is requested, download the OPC UA server certificate from the "menu".

From the PC browser, open CONPROSYS WEB Setting in the product that is connected through Ethernet cable. Go to [Setting] – [OPC UA Server], then click the [Certificate].



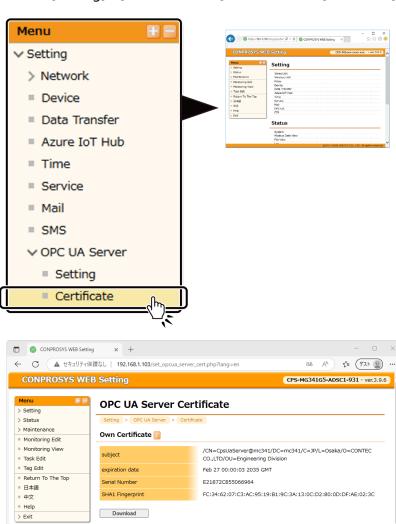
2 Click the [download] in the Own Certificate to download the certificate.



3. Upload OPC UA Client Certificate

When establishing the session of the OPC UA client, and authentication of the user ID or certificates is carried out, uploading the application certificate of the client is required beforehand. Upload the OPC UA Client certificate from the menu.

From the PC browser, open CONPROSYS WEB Setting in the product that is connected through Ethernet cable. Go to [Setting] - [OPC UA Server], then click the [Certificate].



Create new Application Certificate 🔃

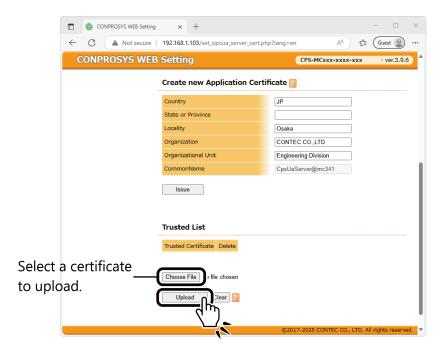
Locality
Organization

Osaka

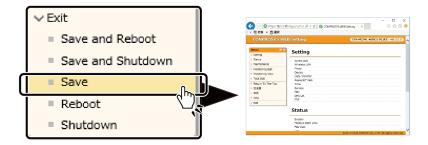
CONTEC CO.,LTD

Engineering Division

2 From the [Choose file] in the "Trusted List", select a certificate, then click the [upload].



3 The certificate is only temporarily saved and it will be discarded upon shutting the power. If you intend to save it, go to [Exit] - [Save], then click the [OK].



4 To delete the uploaded certificate, choose it from the "Trusted List", then click the [del].

4. Client Authentication by User ID

When you select the OPC UA client authentication by user ID, user name and password are required to establish the session. For this, use the same name and password which you need to access to CONPROSYS WEB Setting.

The factory default setting of user name and password are [mc341].

5. Communication with CNC by FANUC

Contains the function to get the output information from FANUC CNC by serial communication and send it to the upper client with the OPC UA protocol.

It receives a DPRNT content prescribed in the CNC program as serial communication data, then convert an identifier and data that are included in the DPRNT into the OPC UA node to send.

* Initial settings of the controller need to be set to communicate with the CNC.

Open the CONPROSYS WEB Setting, go to [Setting] – [Device], and click the image of [CPU module] or [Configure] in the module list, set the COM B for "FANUC CNC" in the [Device].

Then, set the serial communication parameter such as baud rate in accordance with CNC side.

The list of CNC supportive models

- FANUC Series 15
- FANUC Series 16/18/20/21
- FANUC Power Mate -D/F/H
- FANUC Series 16i/18i/21i
- FANUC Power Mate i
- FANUC Series 15i
- FANUC Series 0i
- FANUC Series 30i/31i/32i

DPRNT Identifier List

ltem	DPRNT identifier	UA Node Name	Data Type	Description
Letter Output	None	PrintOutput	String	Store several string data of the DPRNT contents with commas (,).
Product Name	PN	ProductName	String	Store the information regarding the name of the parts processed by machine.
The total number of processed parts	PC	ProductResultNumber	Int32	Store the total number of parts processed by machine.
Value data in any type 1-10	VA01 - VA10	value01 - value10	Double	These nodes can store value data in any type. (10)
String data in any type 1-10	SR01 - SR10	string01 - string10	String	These nodes can store string data in any type. (10)

6.OPC UA Server Specification

1. Overall Specification

Item	Specification
Endpoint URL Server URL	opc.tcp://[IP Address]
Access type	Data Access (Synchronization 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 — SubFolder — Node1 — Node2
Node editing	Not Available (Fixed)

2. Address Space Specification

OPC UA Node	Sub folder	Node Name	Data Type	Access	Data Range
Digital input Bit0 Bit1 Bit2 Bit3	Digital_Input	DI00 DI01 DI02 DI03	Boolean	Read	0, 1
Digital output Bit0 Bit1	Digital_Output	DO00 DO01	Boolean	Read/Write	0, 1
Analog input Channel0 Channel1	Analog_Input	AI00 AI01	UInt32	Read	0 - 4095 0 - 326767 will be used when Industrial Value Conversion is enabled in the Device setting. *1
Counter input Channel0 Channel1	Counter	CNT00 CNT01	Ulnt32	Read	0 - 16777215
Counter input clear Channel0 Channel1	Counter_Clear	CNT00_CLR CNT01_CLR	Boolean	Read/Write	0, 1
Serial communication Letter output Product name The total number of processed parts Value data in any type 1-10 String data in any type 1-10	СОМ	PrintOutput ProductName ProductResult Number value01 - value10 string01 - string10	String String Int32 Double String	Read	Rely on a DPRNT content prescribed in the CNC program.
Other battery level	System	Battery	Boolean	Read	0 (None) 1 (Remain)
TAG	TAG	TAG00 – TAG499	Int32	Read/Write	0 - 2147483647
String tag	STAG	STAG00 – STAG499	-	Read/Write	-
Decimal place tag	DTAG	DTAG00 - DTAG499	Double	Read/Write	Up to 3 decimal places

^{*1} The converted value will be set in the UInt32 when the value used in Industrial Value Conversion is equal to or less than 0.

TAG: The TAG area on the VTC is expressed in Int32.

DAG: The TAG area on the VTC is expressed in Double (3 decimal places).

^{*}Regarding TAG, DTAG

Set the Auto Send Mail

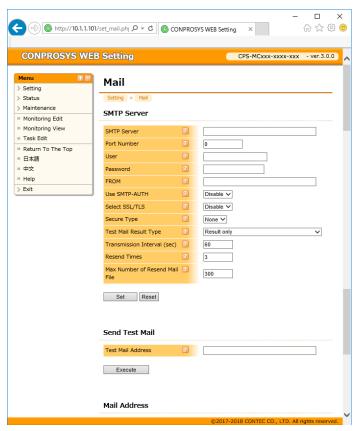
With Send Mail task, mails can be sent automatically from the product.

This section describes how to set and send mails by task.

1.SMTP Sever Setting

Set up SMTP Sever.

- 1 Open CONPROSYS WEB Setting through a Web browser and go to [Setting] [Network]. Click the [Mail] to open SMTP Server setting page.
- **2** Check the specification of the connecting SMTP server and enter the information listed below, then click the [set].

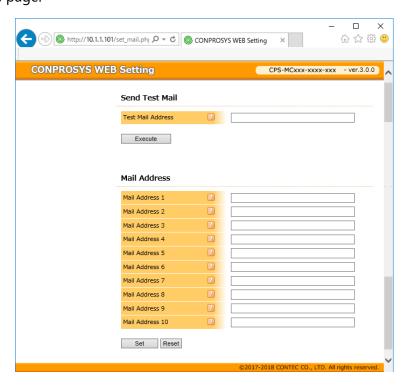


Settings

Settings	Description
SMTP Server	Check the specification of the connecting SMTP server.
Port Number	
User	
Password	
From	
Use SMTP-AUTH	
Select SSL/TLS	
Secure type	
Test Mail Result Type	Display the communication details between SMTP server and CONPROSYS upon sending a test mail.
Transmission Interval(sec)	Specify the cycle to resend a mail when sending fails.
Resend Times	Specify the number of times to resend mails. If sending fails at the specified number of times, mails are discarded.
Max Number of Resend Mail Files	Specify the maximum number of resending mails. When resending mails exceed the maximum, resending is canceled and the mails are discarded.

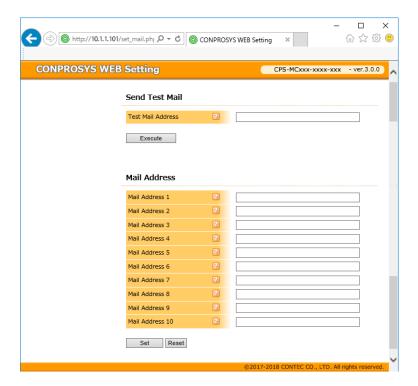
When the setting is completed, send a test mail to confirm.

Enter an address in "email address:", and click the [send test email]. Confirm "Send OK" is viewed on the page.



2. Mail Address Setting

- 1 Open CONPROSYS WEB Setting through a Web browser and go to [Setting] [Network]. Click the [Mail] to open the setting page.
- **2** Enter an address and click the [set].
 - * Several destinations (Up to 10) can be set with "," (comma).
 - * Up to 10 destinations can be set per address. The created contents can be set in To, Cc, and Bcc in Send Mail task.



3 Click the [set]. Send a test mail to confirm whether the setting is completed. Select the address to send a test mail and click the [Execute]. Confirm the "Send OK" is viewed on the page.

3. Send Mail Program

- 1 Open CONPROSYS WEB Setting through a Web browser and go to [Setting], then click the [Task Edit] to open the setting page.
 - * Refer to "Easy Data Process and Control (page 122)" for the task program sample of Email sending.



Send Mail task

♦ Send Mail Task Property

	Property	Value
1 -	То	ADDR00
② —	— cc	ADDR01
3 —	BCC	ADDR02
4 –	Subject	Fixed Value
	Fix value (Subject)	test mail
⑤ —	Body	Fixed Value
	Fix value (Body)	test send
6 –	Attached	NONE
	Next step	Down
	→ X	0
	† A	0

No.	Property	Description
1	То	Set the address that is set in the Mail address setting into To
2	CC	Set the address that is set in the Mail address setting into CC.
3	BCC	Set the address that is set in the Mail address setting into BCC.
4	Subject	Choose to specify Fix value (Subject) from Fixed Str, STAG, or LSTAG
5	Body	Choose to specify Fix value (Body) from Fixed Str, STAG, LSTAG, or File. When specified from the file, the strings in the file are treated as Body.
6	Attached	Files can be attached.

* Mails are sent upon executing Send Mail task. Be aware that SMTP server might misjudge the sending mails as spam mails if the task of Send Mail are executed consecutively.

Connecting to Azure IoT Hub

This section describes how to connect to Azure IoT Hub cloud service offered by Microsoft.

1.Azure IoT Hub Communication Functions

This product features functions to transfer and receive data with Azure IoT Hub cloud service offered by Microsoft.

1. Azure IoT Hub Communication Specification

Item	Specification
The number of Azure IoT Hubs to be connected	1(cannot be connected with several multiple Azure IoT Hubs from one product)
Communication protocol	HTTPS (AMQP and MQTT are unsupported).
Azure IoT Hub security	Approval by security token.
Sending method	Upon executing the task "Send Azure IoT".
Sending cycle	Any (Upon executing the task "Send Azure IoT").
Sending data format	JSON format (Convert the specified files into JSON format to send).
Sending timeout	30 seconds.
Receiving method	Automatically execute reception data processing upon sending.
Receiving interval	Synchronize with the sending cycle.
Receiving data process	Set in the specified TAG or STAG of processing task.
Receiving data format	JSON format (Specifying TAG and STAG and assigning values).
Receiving data specification available TAG	[TAG00] – [TAG499] and [STAG00] – [STAG499].

2. Azure IoT Hub Preparation

The followings are required in advance for communicating with Azure IoT Hub.

- Create a Microsoft Azure account
- Create an Azure IoT Hub
- Obtain a device connection string

1. Create a Microsoft Azure Account

First, create a Microsoft Azure account to use the Azure IoT Hub.

Account

https://azure.microsoft.com/en-us/free/

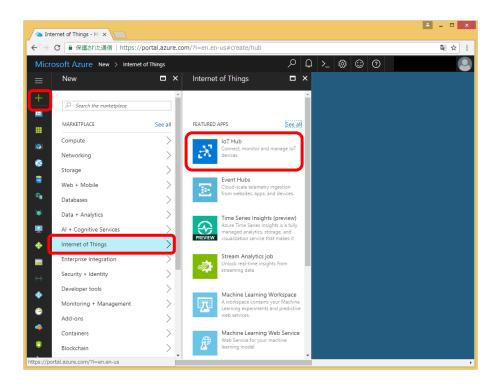
2. Create an Azure IoT Hub

After creating a Microsoft Azure account, a user can sign in to Microsoft Azure portal through the links below.

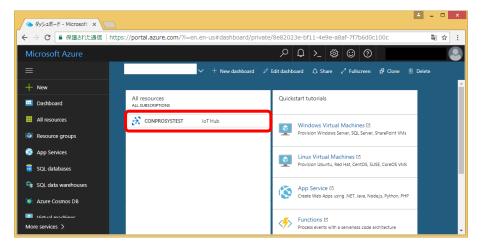
Azure Portal

https://azure.microsoft.com/en-us/features/azure-portal/

- Microsoft Azure portal link may change due to version upgrading.
 - 1 Click the [+] on the left [Internet of Things] [IoT Hub] in order and select Azure IoT Hub.

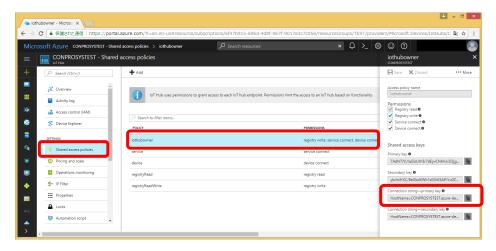


- **2** Enter an arbitrary name in the Name, and choose Pricing and scale tier as desired, use Location to specify a geographic location, then select either Creating new or Use existing for Resource group.
- **3** Click the [Create] to create an Azure IoT Hub.
 - * It might take a few minutes to be completed.
- **4** The created Azure IoT Hub appears on Dashboard. Click it on the Dashboard.



Click the [Shared access policies] - [iothubowner] in order, then copy the string displayed in "Connection string - primary key" (It can be copied to the clipboard by clicking the icon on the right).

The "Connection string - primary key" is used in the following section of Obtain a device connection string.



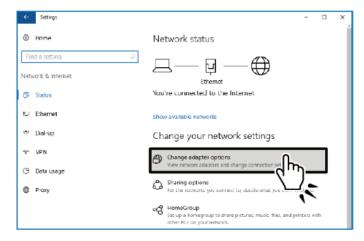
3. Obtain a Device Connection String

This describes how to use the "Device Explorer" tool for creating device string.

1 On the "Windows Settings "screen, click the [Network & Internet].



2 Click the [Network and Sharing Center], and select [Internet Options].

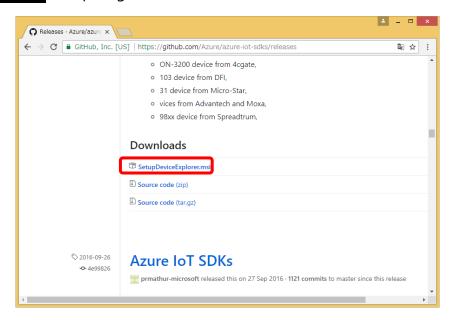


- **3** The proxy server setting can be checked in [LAN setting] of [Connection] tab from the "Internet Options". Be certain the proxy server is off or unchecked.
- * To use the "Device Explorer" tool, it is necessary for the device to not use the proxy server in a network environment that avoids the proxy server. Windows proxy server setting is applied for "Device Explorer" tool.

4 From the link below, download "SetupDeviceExplorer.msi" into Windows PC. *The link may change due to Azure IoT SDKs version upgrading.

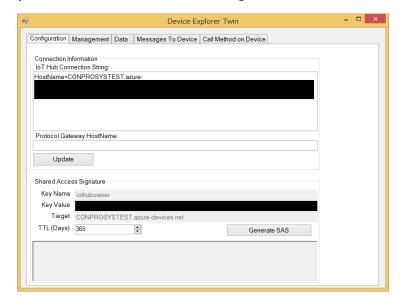
Download

https://github.com/Azure/azure-iot-sdks/releases



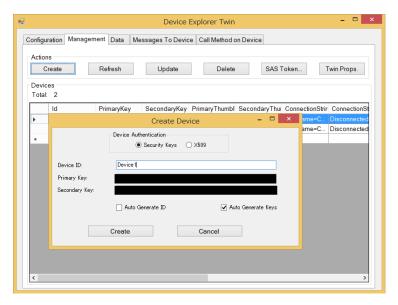
- **5** Execute the downloaded "SetupDeviceExplorer.msi". "Device Explorer" is installed into Windows PC.
- **6** Start up the installed "Device Explorer".
- Register the connection information of Azure IoT Hub.

 In "IoT Hub Connection String" of the [Configuration] tab, paste the "Connection string primary key" that was obtained when creating Azure IoT Hub. Then click the [Update].



8 Register the device.

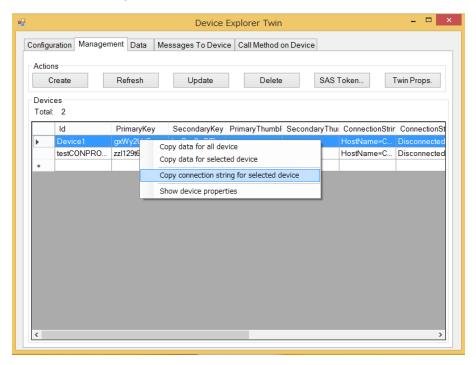
Click the [Create] in the [Management] tab. In the "Create Device" dialog box, enter an arbitrary device ID in "Device ID: ". Select [Security Keys] from "Device Authentication", then click the [Create].



Obtain a connection string to set in the device.

The registered devices are listed in the [Management] tab. Right-click on the device you plan to set a connection string and select [Copy connection string for selected device].

The device connection string is then copied to the clipboard.



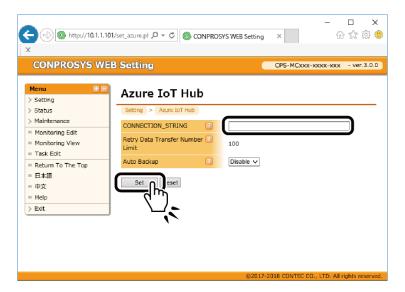
10 Device connection string is obtained per device.

To connect a new device, start from (8) Register the device.

3. Azure IoT Hub Setting

When the cloud service is ready, set the followings to the product.

- Network setting
- SIM card setting (Available with CPS-MC341G-ADSC1-111)
- Azure IoT_Hub setting
- * Refer to "Transferring Measured Data to Server (page 189)" for the details of Network setting and SIM card setting.
- 1 Open CONPROSYS WEB Setting through a Web browser and click the [Azure IoT Hub setting] to open the Azure IoT Hub setting page.
- **2** Enter the device connection string copied in "Obtain the device connection string" to the "CONNECTION_STRING: String". Then click the [set].



* After completing the settings, go to [Exit] and perform one of the followings [Save and Reboot], [Save and Shut Down], or [Save] to save the settings.

4. Send Azure IoT Task

Open CONPROSYS WEB Setting through a Web browser and click the [Task Edit] to open Task Edit page.

Place the Send Azure IoT processing task icon. Upon executing the task, this converts the csv file specified in the target file of the property into JSON format and send it to Azure IoT Hub.

Name	Tool Icon	Description			
Send Azure IoT	Send Azure IoT	Upon executing the task, this converts the	Property	Value	ı
task		csv file specified in the target file of the	Target file	File00	ı
10.011	File(III)	property into JSON format and send it to	Next step	Down	ı
		Azure IoT Hub.	→ X	0	ı
		Azure for Hub.	↓ Y	0	ı

1. Sending Format

For the target file (csv file), describe Key in the first line and Values in the following lines.

The target files are converted into JSON format data when they are sent. If several values are described, the data are divided into smaller portions and sent over several times.

◆ Target File (CSV file)

Format

Key_Line
Value_Line1
Value_Line2
Value_Line3

Data example

DateTime,TAG00,TAG01,
201611281551,0,0,
201611281552,0,0,
201611281553,0,0,
:

♦ Send Data (JSON format)

Format

{Record_Data1} {Record_Data2} {Record_Data2}

Data example

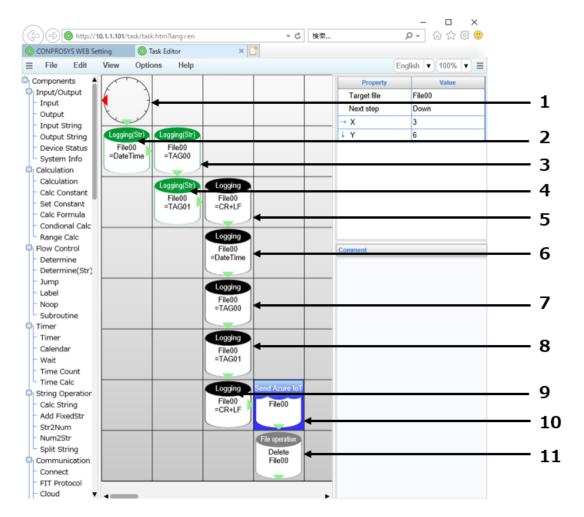
{"DateTime":"201611281551","TAG00":"0","TAG01":"0"}

{"DateTime":"201611281552","TAG00":"0","TAG01":"0"}

{"DateTime":"201611281553","TAG00":"0","TAG01":"0"}

2. Set a Task

Sending target files are created with "Logging" and "Logging (Str)" controls.



1 One action per minute.*
In the example, the following actions are conducted at 00 second per minute.

Property	Value
Hour	*
Min	*
Sec	00
Action	one time
True	Down
False	Left
→ X	0
↓ Y	0

2 Write a key string "DateTime" into File00 (csv file).

Property	Value
Target file	File00
Str	Fixed Value
Fixed value (str)	DateTime
Append char	Comma(,)
Next step	Right
→ X	0
↓ Y	1

3 Write a key string "TAG00" into File00 (csv file).

Property	Value
Target file	File00
Str	Fixed Value
Fixed value (str)	TAG00
Append char	Comma(,)
Next step	Down
→ X	1
↓ Y	1

4 Write a key string "TAG01" into File00 (csv file).

Property	Value
Target file	File00
Str	Fixed Value
Fixed value (str)	TAG01
Append char	Comma(,)
Next step	Right
→ X	1
↓ Y	2

5 Add CR+LF (carriage return) into File00.

Property	Value
Target file	File00
Value	CR+LF
Next step	Down
→ X	2
↓ Y	2

6 Date and Time data are added into File00.

Property	Value
Target file	File00
Value	DateTime
Append char	Comma(,)
Next step	Down
→ X	2
↓ Y	3

7 Write a value "TAG00" into File00 (csv file).

Property	Value
Target file	File00
Value	TAG00
Append char	Comma(,)
Next step	Down
→ X	2
↓ Y	4

8 Write a value "TAG01" into File00 (csv file).

Property	Value
Target file	File00
Value	TAG01
Append char	Comma(,)
Next step	Down
→ X	2
↓ Y	5

9 Add CR+LF (carriage return) into File00.

Property	Value
Target file	File00
Value	CR+LF
Next step	Right
→ X	2
↓ Y	6

 ${f 10}$ The contents of File00 are converted in JSON format to send to Azure IoT Hub.

Property	Value
Target file	File00
Next step	Down
→ X	3
↓ Y	6

11 Delete the File00 (csv file).

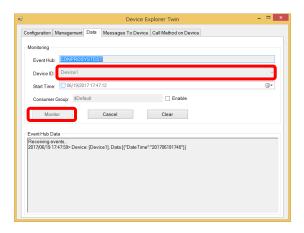
Property	Value
Operation	Delete
From	File00
Next step	Down
→ X	3
↓ Y	7

* It is recommended to use Timer or Wait for executions. (If conducted without it, data will be sent continuously)

3. Check Sending

Data sent from the device can be checked in "Device Explorer" tool.

Open the [Data] tab in "Device Explorer" tool. Select the device from "Device ID:" and click the [Monitor]. This enables users to check that the data are being sent to Azure IoT Hub from the device.



4. Check Log

From CONPROSYS WEB Setting, go to [Menu] – [Status], and click the [Log]. In "Azure log", the sending data log to Azure IoT Hub at the latest time can be checked. "!SENDACK:OK" can be viewed when data has been sent successfully.

Azure log

```
!SENDCSV:/home/contec/data/min_azure/20170619175900_azurefile00.csv
<del>Log: Confirm</del>ation[0] received for message tracking id = 0 with result = IOTHUB_CLIENT_CONFIRMATION_OK
!SENDACK:OK
```

5. Check Resending File

When sending data is failed, click the [File view] and select [Resend folder (Azure)]. This enables a user to check the resend files.

Data are converted in JSON format and stored in the resend file.

6. Receiving Format

♦ Receive Data (JSON format)

Format

```
{
TAG_Data1,
TAG_Data2
:
:
:
```

Data example

```
{"TAG00":"1","STAG99":"TEST"}
```

*Reception operation with the data example

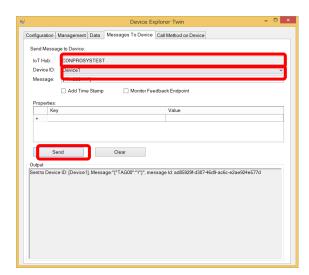
- Set value 1 into TAG00.
- Set a sting TEST into STAG99.

7. Check Receiving

Data can be sent to the device by "Device Explorer" tool.

Open the [Message To Device] tab in "Device Explorer" tool. Select the device from "Device ID:" and describe data in "Message: ". Click the [Send] to send data to the device.

When the data below is described in "Message:", 1 is set into TAG00 value. {"TAG00":"1"}



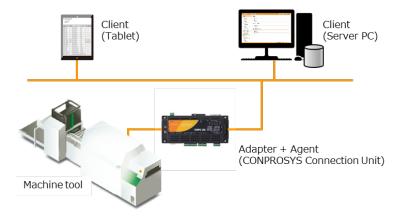
MTConnect

This section describes a communication protocol for machine tools, "MTConnect".

The list of products with MTConnect
• CPS-MC341-ADSC1-931

1.MTConnect Outline

- MTConnect is a communication protocol for machine tools, which is standardized by MTConnect Institution.
- For MTConnect, open communication interface with HTTP and XML is used.
- CONPROSYS that contains MTConnect Adapter and Agent can be used by MTConnect supportive client software.



1. MTConnect Overall Specification

Item		Specification
MTConnect version	n	V1.3
Adapter	TCP Port	7878 (can be changed in WEB menu)
Specification	Communication Protocol	SHDR Ver1.2.0
	Device Identification ID	<device id="Device serial number"></device>
	Cycle Time	100 msec
Agent	TCP Port	5000 (can be changed in WEB menu)
Specification	AllowPut	True
	ReconnectInterval	10000 msec
	BufferSize	131072
	SchemaVersion	1.3

MTConnect ==



Category	Name Attribute	Id Attribute *1	Data Type	Data Range
Digital input Bit0 Bit1 Bit2 Bit3	DI00 DI01 DI02 DI03	XXX_DI00 XXX_DI01 XXX_DI02 XXX_DI03	Boolean	0, 1
Digital output Bit0 Bit1	DO00 DO01	XXX_DO00 XXX_DO01	Boolean	0, 1
Analog input Channel0 Channel1	AI00 AI01	XXX_AI00 XXX_AI01	UInt32	0 - 4095 -32768 to +326767 will be used when Industrial Value Conversion is enabled in the Device setting. *2
Counter input Channel0 Channel1	CNT00 CNT01	XXX_CNT00 XXX_CNT01	UInt32	0 - 16777215
Counter input clear Channel0 Channel1	CNT00_CLR CNT01_CLR	XXX_CNT00_CLR XXX_CNT01_CLR	Boolean	0, 1
Other - battery level Indication	Battery	XXX_Battery	Boolean	0, 1
Decimal place tag	DTAG00 - DTAG499	XXX_DTAG00 - XXX_DTAG499	Double	Up to 3 decimal places
Fanuc CNC - Output log - Product name - The number of products - General numerical Value 01-10 - General string 01-10	PrintOutput ProductName ProductResultNumber value01-value10 string01-string10	XXX_PrintOutput XXX_ProductName XXX_ProductResult Number XXX_value01- value10 XXX_string01- string10	String String Int32 Double String	Rely on CNC DPRNT description.

^{*1} XXX in ID attribute indicates the serial number.

The serial number is the 13-digit serial number of this product.

DTAG: The TAG area on the VTC is expressed in Double (3 decimal places).

⁽e.g.) XXX_CNT00 indicates LRKV311708041_CNT00

^{*2} The converted value will be set in the UInt32 when the value used in Industrial Value Conversion is equal to or less than 0.

^{*}Regarding DTAG

MTConnect ==

3. An example of MTConnect client display

This is an example of Agent used through Chrome browser with the definition file of default (samplel.xml).

Probe command (http://IPaddress:5000/probe)



Category	Type	Sub Type	Id	Name	Units	Native Units
SAMPLE	LEVEL		LRKV331170804_DI00	D100		
SAMPLE	LEVEL		LRKV331170804_DI01	DI01		
SAMPLE	LEVEL		LRKV331170804_DI02	D102		
SAMPLE	LEVEL		LRKV331170804_DI03	D103		
SAMPLE	LEVEL		LRKV331170804_D000	D000		
SAMPLE	LEVEL		LRKV331170804_D001	D001		
SAMPLE	AMPERAGE	DIRECT	LRKV331170804_AI00	AI00	AMPERE	AMPERE
SAMPLE	AMPERAGE	DIRECT	LRKV331170804_AI01	AI01	AMPERAGE	AMPERAGE
SAMPLE	POSITION		LRKV331170804_CNT00	CNT00		
SAMPLE	POSITION		LRKV331170804_CNT01	CNT01		
SAMPLE	CLEAR		LRKV331170804_CNT00_CLR	CNT00_CLR		
SAMPLE	CLEAR		LRKV331170804_CNT01_CLR	CNT01_CLR		
EVENT	CNC_STRING		LRKV331170804_ProductName	ProductName		
EVENT	CNC_INT32		LRKV331170804_ProductResultNumber	ProductResultNumber		

Sample command (http://IPaddress:5000/sample?from=24000&count=10)

Device: CPS-MC341-ADSC; UUID: 000

Device : CPS-MC341-ADSC

Samples

Timestamp	Туре	Sub Type	Name	Id	Sequence	Value
2017-08-30T04:59:38.094564Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	24001	385
2017-08-30T04:59:39.044707Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	24002	386
2017-08-30T04:59:39.495983Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	24004	385
2017-08-30T04:59:40.533438Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	24007	386
2017-08-30T04:59:41.553099Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	24009	385
2017-08-30T04:59:37.059484Z	Amperage	DIRECT	AI01	LRKV331170804_AI01	24000	387
2017-08-30T04:59:39.044707Z	Amperage	DIRECT	AI01	LRKV331170804_AI01	24003	388
2017-08-30T04:59:39.495983Z	Amperage	DIRECT	AI01	LRKV331170804_AI01	24005	387
2017-08-30T04-59-40 0138117	Amperage	DIRECT	ATO1	I RKV331170804 AT01	24006	388

Current command (http://IPaddress:5000/current)

Device: CPS-MC341-ADSC; UUID: 000

Device : CPS-MC341-ADSC

Samples

Timestamp	Туре	Sub Type	Name	Id	Sequence	Value
2017-08-30T04:48:02.473328Z	Amperage	DIRECT	AI00	LRKV331170804_AI00	22590	386
2017-08-30T04:48:02.987969Z	Amperage	DIRECT	AI01	LRKV331170804_AI01	22591	388
2017-08-30T04:47:33.424413Z	Position		CNT00	LRKV331170804_CNT00	22532	7
2017-08-30T01:41:23.666616Z	Clear		CNT00_CLR	LRKV331170804_CNT00_CLR	718	0
2017-08-30T04:47:34.023618Z	Position		CNT01	LRKV331170804_CNT01	22538	7
2017-08-30T01:41:23.666616Z	Clear		CNT01_CLR	LRKV331170804_CNT01_CLR	719	0
2017-08-30T04:47:33.424413Z	Level		DI00	LRKV331170804_DI00	22528	1
2017-08-30T04:47:34.023618Z	Level		DI01	LRKV331170804_DI01	22533	1

*Before activating MTConnect, open the CONPROSYS WEB Setting, go to [Menu] – [Service] – [MTConnect], choose the [Enable], and save the settings, then, reboot the controller.

FTP Communication

This section describes FTP communication.

1.FTP Communication Function

The setting below is required for FTP communication.

- FTP Server setting
- * From the [Exit] menu, perform [Save and Reboot], [Save and Shut down], or [Save] to save the settings.

The followings describe each setting.

2.FTP Server Settings

Set FTP server.

Open CONPROSYS WEB Setting through a Web browser and click the [FTP] to open FTP Server page. Enter FTP server information and click the "set".

- * See the "FTP (page 74)" for FTP server settings.
- * By setting the server, the CONPROSYS can communicate with FTP as a client.

After the setting completion, click FTP connection test button to check the communication. IF the connection is successful, the host folder file and directory information can be viewed.

FTP connection test

```
* Trying 10.1.1.101...
,* Connected to 10.1.1.101 (10.1.1.101) port 21 (#0)
,< 220 Operation successful
,> USER
,< 230 Operation successful
,> PWD
,< 257 "/"
,* Entry path is '/'
,> EPSV
,* Connect data stream passively
,* ftp_perform ends with SECONDARY: 0
,< 229 EPSV ok (|||60805|)
,* Trying 10.1.1.101...
,* Connecting to 10.1.1.101 (10.1.1.101) port 60805
,* Connected to 10.1.1.101 (10.1.1.101) port 21 (#0)
,> TYPE A
,< 200 Operation successful
,< 150 Directory listing
,* Maxdownload = -1
,{ [11 bytes data]
,* Remembering we are in dir ""
,< 226 Operation successful
,* Connection #0 to host 10.1.1.101 left intact
,-rwxrwxrwx 1 0 0 35760 Feb 6 2018 ??.png
,-rwxrwxrwx 1 0 0 14026823 Feb 5 2018 ?????????(??????)MC341?????_2013_20180205.docx
drwxrwxrwx 4 0 0 32768 Jan 1 1980 SD,
drwxrwxrwx 2 0 0 32768 Jan 31 2018 System Volume Information,
drwxrwxrwx 4 0 0 32768 Feb 1 2018 tmp
drwxrwxrwx 2 0 0 32768 Dec 8 2017 tools
```

3. File sending/Receiving Program

Click [Task edit] in the [Maintenance menu] to open the setting page.

- * See the "the sample (10) Receive a file from and send it back to FTP server. (page 165)" for sending and receiving files by task program.
- * Task program is required to send/receive files in FTP communication.

FTP Get task

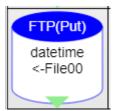


FTP Get task property

Property		Value
Destination file	(1)	File00
Target file name	(2)	Fixed Value
Fixed Value	(3)	test_recv.csv
Next step		Down -
→ X		0
↓ Y		0

- (1) Choose File.
- (2) Target file name can be selected from Fixed Value, or STAG/LSTAG.
- (3) Specify the target file name if you select the fixed value.

FTP Put task



FTP Put task property

Property		Value
Destination file name	(1)	Fixed Value
Fixed Value	(2)	datetime
Target file	(3)	File00
Next step		Down
→ X		O ·
↓ Y .		2

- (1) Destination file name can be selected from Fixed Value, or STAG/LSTAG.
- (2) Specify the destination file name if you select the fixed value.
- (3) Choose File
- When using file (File00 File19) by task, get Ram or SD area before you set up Task edit Setting
 File setting.

MQTT Publish and Subscribe

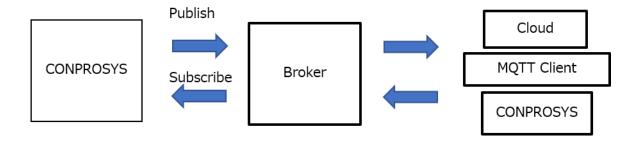
This section describes the settings for sending and receiving data with MQTT protocol.

1.MQTT Outline

This product can be connected to the MQTT-Broker (the server which delievers messages by MQTT) to send/publish or receive/subscribe the measured data with MQTT protocol.

To publish, the measured data can be sent to Cloud or other MQTT clients.

To subscribe, the measured data can be written into the area such as tag (internal variables).



- The tag values edited in the CONPROSYS HMI or the CONPROSYS VTC can be sent.
- The values of the device status can be sent.
- By receiving the tag values, the changed values can be viewed on the CONPROSYS HMI.
- By receiving the values of the device status, device can be controlled.
- The measured data can be sent to Cloud services such as Azure IoT Hub or AWS IoT.
- Data can be sent and received between the CONPROSYS controllers.

2. Required Settings for MQTT Publish and Subscribe

Configure the following items on the CONPROSYS WEB Setting for MQTT Publish/Subscribe with the product.

- MOTT Connection
- MQTT Publish
- MQTT Subscribe
- Service "MQTT Client" -[Enable]
- Time *1*2
- Network settings *2
- *1 : Time synchronization with NTP server needs to be done for the controller without a built-in RTC battery models.

(CPS-MC341-ADSC1-111, CPS-MC341-ADSC2-111, CPS-MC341G-ADSC1-110, CPS-MC341G-ADSC1-111, CPS-MC341Q-ADSC1-111, CPS-MC341-DS1-111, CPS-MC341-DS11-111, CPS-MC341-A1-111)

*2 : Refer to "Transferring Measured Data to Server (page 189)" for Time and Network setting.

Refer to "Function Details (page 30)" for further details on each setting item.

Refer to "MQTT Publish and Subscribe Data Format (page 324)" for further details on Publish and Subscribe data format.

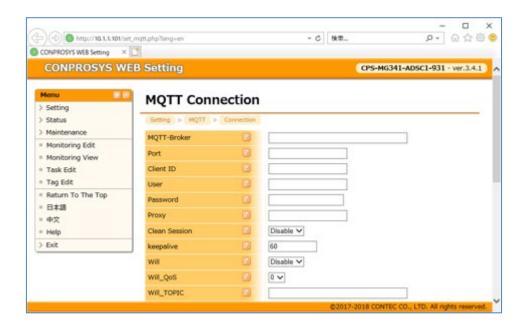
After you have completed the settings, save them to ROM in the controller and reboot the product.

3.MQTT Connection

Set up and check MQTT Connection.

1 On the CONPROSYS WEB Setting, go to [MQTT] -[Connection] from the Setting menu. Enter the host name or IP address of the connecting Broker prepared separately in "MQTT-Broker". Enter the port number of the connecting Broker in the "Port".

Enter the necessary information for other items. After you enter them, click the "Set".



2 On the Test sending, enter a sting in the "topic" and click the [Execute] button. The string "CONPROSYS_MQTT_TEST_MESSAGE" can be sent to the connecting Broker.

Enter a sting such as 'test' in the "topic" as sending destination.

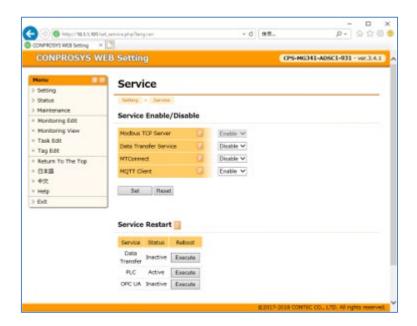
The "send ok" can be viewed when sending has succeeded.

An error message starting with "Error: " can be viewed when sending has failed.

Check the settings or connection status again.



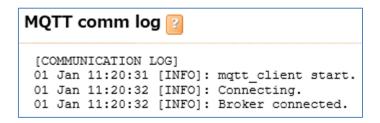
When the Test sending has been completed, go to [Service] from the Setting on the CONPROSYS WEB Setting. Select the [Enable] in the "MQTT Client" and click the "Set". Save the settings to ROM of the controller and reboot the product.



When the product is rebooted, go to [Status] – [log] on the CONPROSYS WEB Setting.

See the [COMMUNICATION LOG] in [MQTT comm log].

If "[INFO]: Broker connected." is displayed, it indicates that the connection has succeeded. If the connection has failed, an error message starting with "Error: " is displayed. Check the settings or connection status again.



After the connection success, the contents configured in MQTT Publish are published and the details set in MQTT Subscribe are subscribed. If there are errors in MQTT Publish or Subscribe, an error message will be displayed on [COMMUNICATION LOG] in [MQTT comm log] from [Status] - [log]on the CONPROSYS WEB Setting.

The communication log can be viewed on [COMMUNICATION LOG].

The conversion logs for PUBLISH and SUBSCRIBE can be viewed on [PUBLISH LOG] and on [SUBSCRIBE LOG]. Publishing and subscribing will be logged per Cloud Key in the event of an error.

Refer to "MQTT Communication Log (page 329)" for further details on log.

4.Examples for MQTT Publish and Subscribe

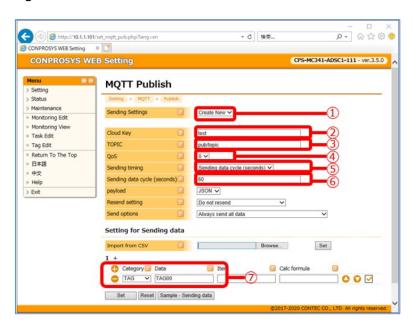
The following table lists samples of MQTT Publish and Subscribe.

Sample	Description	Page
Publish (1)	Sending TAG00 values per 60 seconds to TOPIC "pub/topic"	Page 245
Publish (2)	Deciding the timing to send data by TASK (CONPROSYS VTC)	Page 247
Publish (3)	Storing sending data on the product when disconnecting from the Broker	Page 249
Publish (4)	Sending data when only there is a change in the contents	Page 251
Publish (5)	Calculating data values and sending the results	Page 254
Publish (6)	Adding the Sending Settings to send data to more than one TOPIC	Page 255
Publish (7)	Exporting the Setting for Sending data to a file and importing it into other sending settings.	Page 256
Publish (8)	Setting data in any format in STAG to send	Page 258
Subscribe (1)	Writing the data from TOPIC "sub/topic" into TAG00 and TAG01	Page 259
Subscribe (2)	Checking Time stamp, and processing only the data that are new from the previous processing	Page 261
Subscribe (3)	Receiving data and setting the calculated results in tag	Page 263
Subscribe (4)	Adding the Receiving Settings to receive data from more than one TOPIC	Page 264
Subscribe (5)	Exporting the Setting for Receiving data to a file and importing it into other receiving settings.	Page 265
Subscribe (6)	Receiving data in any format to set in STAG	Page 267

1. Publish (1)

Sending TAG00 values per 60 seconds to TOPIC "pub/topic"

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.



No.	Item	Example	Description
1	Sending Settings	Create New	Select the "Create New" for a new sending setting. Select the Cloud Key to edit the setting previously created.
2	Cloud Key	test	Set the string that is included in the sending data "CK".
3	TOPIC	pub/topic	Set up sending TOPIC.
4	QoS	0	Set QoS value of MQTT by selecting 0,1, or 2.
5	Sending timing	Sending data cycle(seconds)	Select timing to send data.
6	Sending data cycle (seconds)	60	Decide the sending cycle in seconds.
7	Setting for Sending data	Category "TAG" Data "TAG00"	Set sending tags or devices.

After setting the items, click the "Set". Save the settings to ROM of the controller and reboot the product.

After the items listed above are entered, the following contents are sent at every specified timing (60 seconds).

Publish sample

2. Publish (2)

Deciding the timing to send data by TASK (CONPROSYS VTC)

Configure the settings in the [Publish] and [Task Edit] of MQTT menu on the CONPROSYS WEB Setting.

1 [Go to [MQTT] - [Publish], and select the "Task Trigger" in "Sending timing".
As for the other items, set the same contents listed in "**Publish (1) (Page 245)**".



Item	Example	Description
Sending timing	Sending data cycle (seconds)	Send data at every specified number of seconds.
	Task Trigger	Send data when the task "MQTT PUB Trigger" is executed.

2 Go to Task Edit, and place the "MQTT PUB Trigger" task at the timing you wish to send.

	Property	Value
MOTT DUR Trigger	Cloud Key	No setting name
MQTT PUB Trigger	Next step	Down
No setting name	→ X	0
	↓ Y	0

In the "MQTT PUB Trigger" task, enter the name for the Cloud Key in Property. "test" is set for this example.

	Property	Value	
MQTT PUB Trigger	Cloud Key	test	
test	Next step	Down	
lesi	→ X	0	
	↓ Y	0	

Publish will be available by saving the settings to ROM and rebooting the product.

After the items listed above are entered, the following contents are sent at every passing through the "MQTT PUB Trigger" timing.

Publish sample

3. Publish (3)

Storing sending data on the product when disconnecting from the Broker

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.

1 Configure the "Resend" setting as either "Latest data -> Resend data" or "Resend data -> Latest data".

As for the other items, set the same contents listed in "**Publish (1) (Page 245)**". Save the settings to ROM of the controller and reboot the product.



Item	Example	Description
Resend setting	Do not resend	Data are not stored.
	Resend Latest Data->Resend data	Each time the latest data are sent at the specified cycle first, then the resend data will be sent. If the specified sending cycle comes while resending data, the latest data will be sent first, then resending data restarts.
	Resend data->Latest Data	The resend data are sent first, then the latest data will be sent. If the specified sending cycle comes while resending data, the latest data will be added to the end of the resending data. Sending timing is maintained in chronological order.

2 When the product is disconnected from the Broker, resending data are stored and the controller attempts to reconnect to the Broker. After reconnecting with the Broker, the stored data are sent from the oldest one in order.

After the items listed above are entered and when connected to the Broker, the following contents are sent at every specified timing (60 seconds).

After the items listed above are entered and the controller is connected to the Broker, the following contents are sent at every specified timing (60 seconds).

Resending data can be stored for three days up to 16MB. If the stored data exceeds 16MB, the oldest data in each Cloud Key will be deleted.

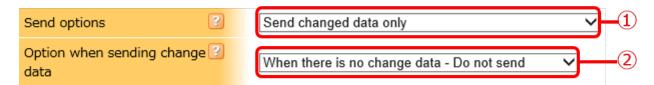
Publish sample

Refer to "MQTT Publish and Subscribe Data Format (page 324)" for details of Resend data format.

4. Publish (4)

Sending data when only there is a change in the contents

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.



No.	Item	Example	Description
1	Send options	Always send all data	All data are always sent even when there are no changes in data.
		Send changed data only	When there are no changes in data after the previous sending time, those data will not be included in the sending strings.
		Send changed data only Send all data in (1,5,10,30,60)	After the set time has elapsed, all data will be sent even if there are no changes in data.
2	Option when sending change data	When there is no change data Do not send	Data are not sent when there are no changes in data.
		When there is no change data Send header only	Only header is sent when there are no changes in data.

Here, set the "TAG00" and "TAG01" to be sent in [Setting for Sending data].

As for the other items, set the same contents listed in "Publish (1) (Page 212)".

Save the settings to ROM of the controller and reboot the product.

The following contents are sent at every specified timing (60 seconds) when the "Always send all data" is selected in No. 1 "Send options".

Always send all data sample

```
{
    "UUID": "10beac02-aacf-4584-8c8a-913a79307d71",
    "T": "2010-01-01T00:00:00.000Z",
    "SN": "product serial number",
    "CK": "test",
    "DATA": [
         {
              "ID": "TAG00",
              "V": "VALUE"
         },
         {
              "ID": "TAG01",
              "V": "VALUE"
         }
    ]
}
```

When the "Send changed data" is selected in No. 1 "Send options", the following contents are sent if only TAG01 is changed after the previous sending time.

When there are no changes in data, they are not sent.

Send changed data (TAG01) only sample

When the "Send header only" is selected in No. 2 "Option when sending change data", the following contents are sent if there are no changes in all data after the previous sending time.

Send header only data sample

```
{
    "UUID": "10beac02-aacf-4584-8c8a-913a79307d71",
    "T": "2010-01-01T00:00:00.000Z",
    "SN": "product serial number",
    "CK": "test",
    "DATA": [
    ]
}
```

5. Publish (5)

◆ Calculating data values and sending the results

Configure the "Cal formula" setting in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.



Enter "Cal formula" per data.

When "DATA+10" is set, the data values will be increased by +10 upon publishing.

Available symbols or marks

Available data

TAG, MODBUS, DEVICE, DATA (Selected data)

(The selectable items from "Data" in the [Setting for Sending data] can be used.)

Sample

- DATA*TAG00
- DATA+10
- MODBUS0001 < < 1

6. Publish (6)

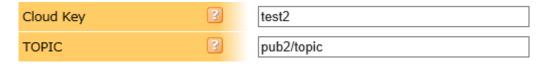
♦ Adding the Sending Settings to send data to more than one TOPIC

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.

1 Select the "Create New" for "Sending Settings" (Up to 10 settings can be created).



2 Set strings for "Cloud Key" and the "TOPIC" that are different from the previously set ones. For this example, enter [test2] for the "Cloud Key", and [pub2/topic] for the "TOPIC". As for the other items, set the same contents listed in "Publish (1) (Page 245)". Save the settings to ROM of the controller and reboot the product.



After the items listed above are entered, the following contents as well as the previously set ones are sent at every specified timing (60 seconds) to TOPIC [pub2/topic].

Publish sample

7. Publish (7)

Exporting the Setting for Sending data to a file and importing it into other sending settings.

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.

1 In the [Sending Settings], select cloud key to export the Setting for Sending data. In this example, select the [test] as performed in the "Publish (1)(page245)".



Click the [Execute] button of the [Export to CSV] to export the Setting for Sending data to the following CSV file (letters/CR code: crlf with utf-8-bom) and to be download.

The file name to be exported is output in the form of [(Cloud key_)pubdata.csv]. It is [test_pubdata.csv] in this example.



An example of CSV file

DATA,NAME,TYPE,CALC,USE TAG00,,0,,1

Name	Description
DATA	Data ID (TAG,MODBUS,DEVICE).
NAME	Item name.
TYPE (For M2M Gateway only)	This is the settings configured in PLC data type. When the category is not selecting PLC: 0 When the category is selecting PLC: 0: Unsigned 16bit data 1: Signed 16bit data 2: Unsigned 32bit data (BE) 3: Signed 32bit data (BE) 4: Unsigned 32bit data (LE) 5: Signed 32bit data (LE) 6: Floating-point 32bit data (BE) 7: Floating-point 32bit data (LE)
CALC	Calc formula
USE	This is the enabled or disabled data settings configured by checking off the box. 1 will be written when data are enabled and 0 will be written when data are disabled. The disabled data are not included in the sending payload.

3 Select Sending Settings to import the Setting for Sending data. It is selectable from the present settings or a new setting. In this example, [test2] is selected.



4 Select CSV file from the [Import from CSV] and click the [Set] button. The Setting for Sending data of CSV file will be saved.

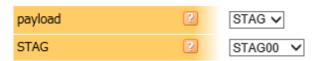


8. Publish (8)

◆ Setting data in any format in STAG to send

Configure the settings in the [Publish] of MQTT menu on the CONPROSYS WEB Setting.

1 Select "STAG" for "payload". Select STAG number for "STAG" to send data. As for the other items, set the same contents listed in "**Publish (1) (Page 245)**".



Item	Example	Description
Payload	JSON	Data specified in CONPROSYS WEB Setting are dynamically changed into JSON format to be sent.
	STAG	Value of STAG specified is sent.
STAG	STAG00	Specify the STAG number to send data.

After the items listed above are entered, the following contents are sent at every specified timing (60 seconds).

Publish sample

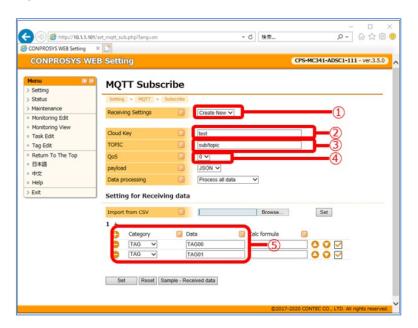
2000/01/01 00:00:00,CONPROSYS

^{*} In this sample, the string "2000/01/01 00: 00: 00, CONPROSYS" is set into STAG00 in Task Edit.

9. Subscribe (1)

Writing the data from TOPIC "sub/topic" into TAG00 and TAG01

Configure the settings in the [Subscribe] of MQTT menu on the CONPROSYS WEB Setting.



No.	Item	Example	Description
1	Receiving Settings	Create New	Select the "Create New" for a new receiving setting. Select the Cloud Key to edit the setting previously created.
2	Cloud Key	test	Set the string that is included in the receiving data "CK".
3	TOPIC	sub/topic	Set up receiving TOPIC.
4	QoS	0	Set QoS value of MQTT by selecting 0,1, or 2.
5	Setting for Receiving data	Category "TAG" Data "TAG00","TAG01"	Set receiving tags or devices.

After setting the items, click the "Set". Save the settings to ROM of the controller and reboot the product.

After the items listed above are entered, each "VALUE" will be written into TAG00 and TAG01 when the following contents are received.

Subscribe sample

10. Subscribe (2)

Checking time stamp and processing only the data that are new since the previous processing

Configure the settings in the [Subscribe] of MQTT menu on the CONPROSYS WEB Setting.

1 Select the "Process only new data" for "Data Processing".

As for the other items, set the same contents listed in "Subscribe (1) (Page 259)".

Save the settings to ROM of the controller and reboot the product.



Item	Example	Description
Data processing	Process all data	Process all of the received data.
	Process only new data	Process only new data since the previous processing. *

* Receiving data should contain time stamp (ISO8601 extended form). Perform processing if there is no time stamp. If no time zone is specified, processing will be performed with the time zone set in the product.

[Time stamp format (ISO8601 extended form)]:

- "T":"YYYY-MM-DDThh:mm:ss.sss"
- "T":"YYYY-MM-DDThh:mm:ss.sss+timezone"

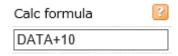
After the items listed above are entered, the following contents will be received and each "VALUE" will be written into TAG00 and TAG01 when the time stamp is newer than the data processed last time.

Subscribe sample

11. Subscribe (3)

Receiving data and setting the calculated results in tag

Configure the "Cal formula" setting in the [Subscribe] of MQTT menu on the CONPROSYS WEB Setting.



Enter "Cal formula" per data.

When "DATA+10" is set, the data values will be increased by +10 upon subscribing.

Available symbols or marks

Available data

TAG,MODBUS,DEVICE,DATA(Selected data)

(The selectable items from "Data" in the [Setting for Subscribing data] can be used.)

Sample

- DATA*TAG00
- DATA+10
- MODBUS0001<<1

12. Subscribe (4)

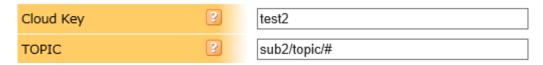
Adding the Receiving Settings to receive data from more than one TOPIC

Configure the settings in the [Subscribe] of MQTT menu on the CONPROSYS WEB Setting.

1 Select the "Create New" for "Receiving Settings" (Up to 10 settings can be created).



2 Set strings for "Cloud Key" and the "TOPIC" that are different from the previously set ones. For this example, enter [test2] for the "Cloud Key", and [sub2/topic/#] for the "TOPIC". MQTT Wildcard [+] and [#] are usable for "TOPIC" in the Receiving Setting. As for the other items, set the same contents listed in "Subscribe (1) (page 259)" Save the settings to ROM of the controller and reboot the product.



After the items listed above are entered, each "VALUE" will be written into TAG00 and TAG01 when the following contents as well as the previously set ones are received in TOPIC [sub2/topic/#].

Subscribe sample

13. Subscribe (5)

Exporting the Setting for Receiving data to a file and importing it into other receiving settings.

Configure the settings in the [Subscribe] of [MQTT] menu on the CONPROSYS WEB Setting

In the [Receiving Settings], select cloud key to export the Setting for Receiving data. In this example, select the [test] as performed in the "Subscribe (1)(page259)".



Click the [Execute] button of the [Export to CSV] to export the Setting for Receiving data to the following CSV file (letters/CR code: crlf with utf-8-bom) and to be download. The file name to be exported is output in the form of [(Cloud key_)subdata.csv]. It is [test_subdata.csv] in this example.



An example of CSV file

DATA,TYPE,CALC,USE TAG00,0,,1 TAG01,0,,1

Name	Description
DATA	Data ID (TAG,MODBUS,DEVICE).
TYPE (For M2M Gateway only)	This is the settings configured in PLC data type. When the category is not selecting PLC: 0 When the category is selecting PLC: 0: Unsigned 16bit data 1: Signed 16bit data 2: Unsigned 32bit data (BE) 3: Signed 32bit data (BE) 4: Unsigned 32bit data (LE) 5: Signed 32bit data (LE) 6: Floating-point 32bit data (BE) 7: Floating-point 32bit data (LE)
CALC	Calc formula
USE	This is the enabled or disabled data settings configured by checking off the box. 1 will be written when data are enabled and 0 will be written when data are disabled. This is not performed If disabled data are received.

3 Select Receiving Settings to import the Setting for Receiving data. It is selectable from the present settings or a new setting. In this example, [test2] is selected.



4 Select CSV file from the [Import from CSV] and click the [Set] button. The Setting for Receiving data of CSV file will be saved.

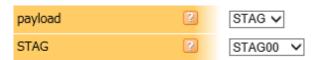


14. Subscribe (6)

♦ Receiving data in any format to set in STAG

Configure the settings in the [Subscribe] of MQTT menu on the CONPROSYS WEB Setting.

1 Set "payload" for "STAG". Select the STAG number to write the payload that is received. Leave the Cloud key blank, and as for the other items, set the same contents listed in "Subscribe (1) (Page 259)".



Item	Example	Description
payload	JSON	Write received JSON string into data that are specified in CONPROSYS WEB Setting.
	STAG	Write received data into specified STAG.
STAG	STAG00	Select the STAG to write payload that is received.

After the items listed above are entered, received strings will be written into "STAG00".

Subscribe sample

2000/01/01 00:00:00,CONPROSYS

^{*}In this sample, the string "2000/01/01 00: 00: 00, CONPROSYS" is written into "STAG00".

5.Examples for MQTT Application

The following table lists samples of MQTT Application.

Sample	Description	Page
Connection (1)	Detecting disconnection between the product and the Broker	
Connection (2)	Connection (2) Encrypting Publish or Subscribe Strings	
Other (1)	Obtaining "MQTT Result" and "MQTT ErrorTime" by Task (CONPROSYS VTC)	Page 272

1. Connection (1)

◆ Detecting disconnection between the product and the Broker

Configure the "Will" settings in the [Connection] of MQTT menu on the CONPROSYS WEB Setting.

After you have completed the settings, save them to ROM in the controller and reboot the product.



No.	Item	Description
1	Will	Set Will to Enable.
2	Will_QoS	Select MQTT QoS value from 0,1, or 2.
3	Will_TOPIC	Set TOPIC to send.
4	Will_Payload	Set the string to send.

When the Will is enabled, the specified string in the "Will_Payload" will be sent to the "Will_TOPIC".

Informing other CONPROSYS controller connected with the same Broker of disconnection.

Follow the steps below to inform the disconnection to other CONPROSYS.

- 1 Set an arbitrary Cloud Key, any TOPIC, and arbitrary receiving data for "MQTT Subscribe" setting in other CONPROSYS controller. "TAG00" is used in this example.
- **2** Set the TOPIC specified in other CONPROSYS to the "Will_TOPIC" of this contoller.
- **3** Set the "Will_Payload" with the following contents.

An example of Will_Payload (JSON format)

```
{"CK":"Cloud Key" ,"DATA":[{ "ID":"TAG00" , "V": 1}]}
```

When the product is disconnected from the Broker, 1 will be written into TAG00 of other CONPROSYS.

2. Connection (2)

♦ Encrypting strings to Publish or Subscribe

Configure the settings in the [Connection] of MQTT menu on the CONPROSYS WEB Setting.

After you have completed the settings, save them to ROM in the controller and reboot the product.



No.	Item	Description
1	Encryption algorithm	Select "AES-256-CBC BASE64" or "AES-256-CBC BASE64 NOSALT".
2	Encryption password	Set an arbitrary password to encrypt a sending string.
3	Decrypted password	Set an arbitrary password to receive an encrypted string.

Refer to "MQTT Publish and Subscribe Data Format" (page 324) for the publish/subscribe data format of the encrypted strings.

Sending and receiving encrypted strings between the CONPROSYS controllers

- **1** With the sending side of the CONPROSYS controller, set the "Encryption algorithm" and the "Encryption password" in [MQTT Connection].
- **2** With the receiving side of the CONPROSYS controller, set the same "Encryption algorithm" of the sending side in [MQTT Connection]. Set the password decided in the "Encryption password" of the sending side to "Decrypted password".

After the items listed above are entered, the following contents are sent at every specified timing from the sending side of the controller.

On the receiving side of the controller, the inside of the "E_DATA" key is decrypted with the encryption algorithm of the "ALG" key in the sending data.

Publish sample

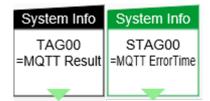
- * When there is no "ALG" key in the sending data, the inside of the "E_DATA" key is decrypted with the "encryption algorithm" set in the receiving side of the CONPROSYS.
- * The contents of "DATA" key will be processed when there is neither "ALG" key nor "E_DATA" key and there is unencrypted "DATA" key in the sending data.

3. Other (1)

Obtaining "MQTT Result" and "MQTT ErrorTime" by Task (CONPROSYS VTC)

Configure the settings in the [Task Edit] on the CONPROSYS WEB Setting.

After you have completed the settings, save them to ROM in the controller and reboot the product.



In the "System Info" task, set "MQTT Result" and "MQTT ErrorTime" for the "System Info". Place the set "System Info" task at the timing you wish to obtain.

Property	Value
Tag ID	TAG00
System Info	MQTT Result
Next step	Down
→ X	0
↓ Y	0

Property	Value
Tag ID	STAG00
System Info	MQTT ErrorTime
Next step	Down
→ X	0
↓ Y	0

For the "MQTT Result", "0" will be written as a failure, and "1" will be written as a success of communication with the Broker into the specified tag.

For the "MQTT ErrorTime", the time when communication with the connecting Broker failed will be written into the specified tag.

The time format is "YYYYMMDDhhmmss".

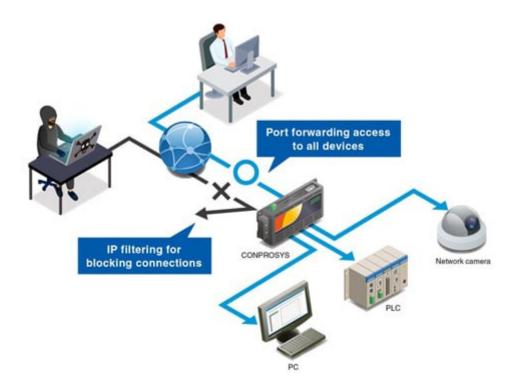
Router Function

This section describes Router function.

1.Router Function Outline

The product is equipped with a simple routing function.

It is possible to use a DHCP server, static routing, port forwarding and IP filtering.



2. Router Function Setting

WAN interface settings allow switching between Wired LAN/Wireless LAN/3G function used for Internet connection. Set the function to be used as "Enabled" and click the [set].

* From the [Exit] menu, perform [Save and Reboot], [Save and Shut down], or [Save] to save the settings.

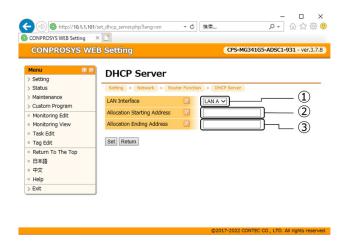
Router Function Setting > Network > Router Function ? Disable 🕶 Router 2 LAN A WAN Interface DHCP Server 2 Disable 🗸 Advanced Settings Static Routing Disable 🗸 Advanced Settings Disable 🗸 Advanced Settings Port Forwarding Reset Set

1. DHCP Server

Configure the settings in the [DHCP Server] of Router Function menu on the CONPROSYS WEB Setting.

Assigns IP addresses to DHCP clients connected to the product over a wired LAN.

- 1 Click the [Advanced Settings] button under [Router Function] and [DHCP Server] in CONPROSYS WEB Setting to display the DHCP server configuration screen.
- **2** Set the DHCP server. Select and enter items 1-3 below.



No.	Setting	Description
1	LAN Interface	Select LAN interface that allocates DHCP.
2	Allocation Starting Address	Enter the starting address that allocates DHCP.
3	Allocation Ending Address	Enter the Ending address that allocates DHCP.

The starting IP address allocated is set to the same segment as the IP address of the wired LAN. After you enter them, click the "Set". Save the settings to ROM of the controller and reboot the product.

2. Static Routing

Configure the settings in the [Static Routing] of Router Function menu on the CONPROSYS WEB Setting.

Static routing is a function that allows the product to send to a specified IP address by registering the destination IP address in the product.

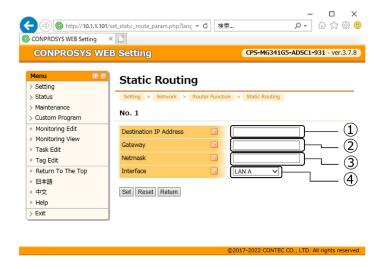
1 Click the [Advanced Settings] button under [Router Function] and [Static Routing] in the CONPROSYS WEB Setting to display the setting list screen.

This product allows a maximum of 32 settings. Click "Add" to select and enter the setting values.



**Click Add on the screen to proceed to the screen for adding settings to "Static Routing".

2 Set the static routing route.Enter items 1-4 below.



No.	Setting	Description
1	Destination IP Address	Enter the network address of the destination IP address. Example: To set "192.168.3.0" as the network address 192.168.3.0
2	Gateway	Enter the IP address of the next hop router (gateway) that will be the routing destination by static routing.
3	Netmask	Enter the subnet mask of the specified network address. Make sure that the subnet mask specified is the correct combination of IP address and subnet mask. If the correct subnet mask is not specified, the system may not operate properly.
4	Interface	Select the interface to be routed to by static routing.

After you enter them, click the "Set". Save the settings to ROM of the controller and reboot the product.

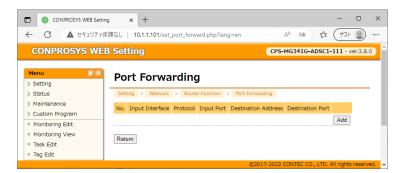
3. Port Forwarding

Configure the settings in the [Port Forwarding] of Router Function menu on the CONPROSYS WEB Setting.

Port forwarding is a function that forwards packets arriving at a specific port number from the Internet to a pre-defined LAN-side device.

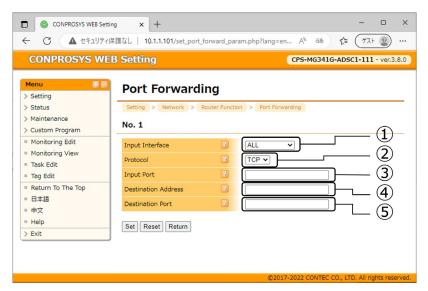
1 Click the [Advanced Settings] button under [Router Function] and [Port Forwarding] in the CONPROSYS WEB Setting to display the setting list screen.

This product allows a maximum of 32 settings. Click "Add" to select and enter the setting values.



*Click Add on the screen to proceed to the screen for adding settings to "Port Forwarding".

2 Set the Port Forwarding. Select and enter items 1-5 below.



No.	Setting	Description
1	Input Interface	Select the input interface to be forwarded.
2	Protocol	Select the target protocol.
3	Input Port	Enter any port number. Accesses from the Internet side using the specified port number will

No.	Setting	Description	
		be forwarded to the device specified in "Destination Address".	
4	Destination Address	Enter the IP address of the LAN-side host to which port mapping is applied.	
5	Destination Port	Enter any port number. Example: To allow access to the Web server: 80 To allow access to the FTP server: 21	

After you enter them, click the "Set". Save the settings to ROM of the controller and reboot the product.

4. IP Filter

Configure the settings in the [IP Filter] of IP Filter menu on the CONPROSYS WEB Setting. Rejection of unnecessary IP packets depending on the application and network.

1 Set the following items to be enabled and click the "Set" button. The IP filter can be activate or deactivate by clicking the [Activate] or the [Deactivate] buttons.

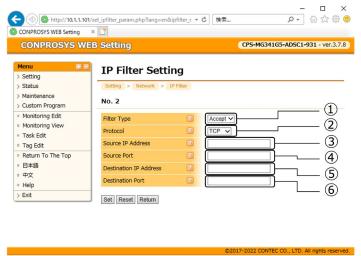


2 The Filter List screen is displayed.
This product allows a maximum of 64 settings. Click "Add" to select and enter the setting values.



**Click Add on the screen to proceed to the screen for adding settings to "IP Filter".

3 Set the IP Filter. Select and enter items 1-6 below.



No.	Setting	Description	
1	Filter Type	Select the handling of packets that match the filter criteria.	
2	Protocol	Select the IP protocol type to be filtered.	
3	Source IP Address	Enter the source IP address of the packets to be filtered. Leave blank (any) if you want to target packets from all IP addresses.	
4	Source Port	Enter the source port number of the packets to be filtered. Leave this field blank (any) if you want to target packets from all port numbers.	
⑤	Destination IP Address	Enter the destination IP address of the packets to be filtered. Leave blank (any) if you want to target packets from all IP addresses.	
6	Destination Port	Enter the destination port number of the packets to be filtered. Leave this field blank (any) if you want to target packets from all port numbers.	

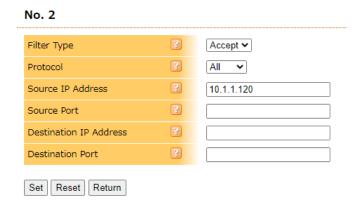
After you enter them, click the "Set". Save the settings to ROM of the controller and reboot the product.

Access permission by IP address filtering

Register the clients to be allowed access.

Enter the IP address of the client to be allowed access in ③Source IP Address. ②Select "All" for Protocol.

Example: When specifying 10.1.1.120



When settings are complete, click "Set".

"The settings are saved temporarily." screen ends, the settings are registered in the filter list.

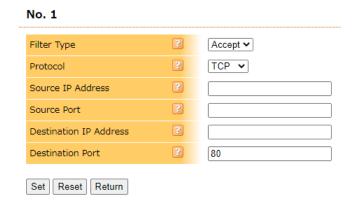
◆ Access Permission by Port Filtering

Select the protocol of the service to be allowed access at ②. (TCP/UDP/ICMP)

Enter the port number of the service to which access is allowed in ④Destination Port and ⑥Source

Port according to the service.

Example: To allow Web access (HTTP) (This setting is initially registered.)



When settings are complete, click "Set".

"The settings are saved temporarily." screen ends, the settings are registered in the filter list.

[Example of entering a port number depending on the service to be allowed]

Services to be allowed	Filtering to use	Example of port number entry
To allow Web access (HTTP)	TCP port filtering	80
To allow file downloading (FTP)	TCP port filtering	21
To allow sending e-mail (SMTP)	TCP port filtering	25

Connecting to Facility View

This section describes how to connect with FacilitView.

The list of the product with FacilitView

CPS-MC341-ADSC1-931

3. Facility View

Connecting with FacilityView allows the following.

- Checking data, firmware version, and uptime measured by FacilityView
- Updating the product's firmware from FacilityView

2.Preparation for FacilityView Connection

To connect with FacilityView, the following preparations are required.

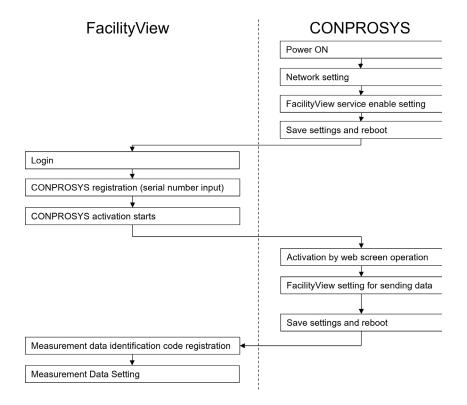
- Basic License Purchase
- Purchase Terminal Connection License
- Account Registration

The following should be prepared as necessary.

- Identification Code License Purchase *
- * If not, measurement data cannot be displayed. Firmware can be distributed.

3. Facility View Setting

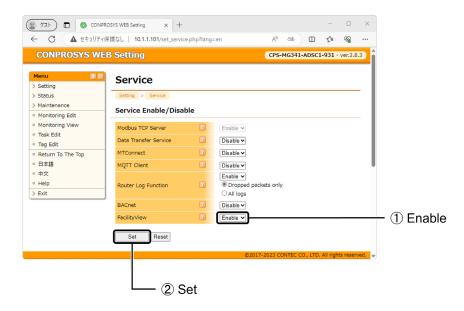
The following steps are used to set up with FacilityView.



1. Service

Set up the service setting in CONPROSYS WEB Setting.

(1) Click the [Enable] in the "FacilityView". (2) Then click the "set".

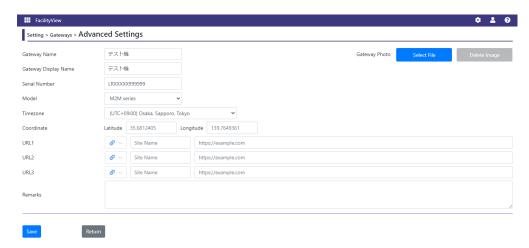


Save the settings to ROM of the controller and reboot the product.

2. CONPROSYS Registration

From the "Gateways" screen of the FacilityView site, click "New".

The "Advanced Settings" screen will be displayed. Enter each item and click "Save".

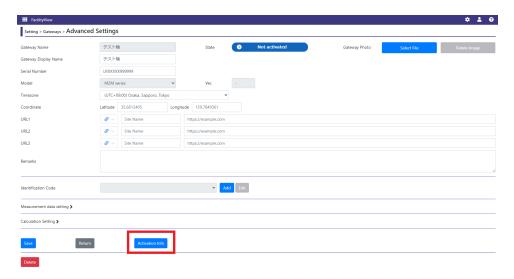


Please refer to the FacilityView Reference Manual for operating instructions.

3. Activation

◆ FacilityView

From the "Gateways Advanced Settings" screen on the FacilityView site, click the "Activation Info" button. Please refer to the FacilityView Reference Manual for operating instructions.



Click the [Activation Info] button to start the activation process.



If successful, the following screen will be displayed.



In case of failure, the following screen is displayed.



♦ CONPROSYS

Perform the activation in [FacilityView Connection] in CONPROSYS WEB Setting.

FacilityView Connection

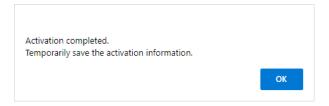


If activation information is already available, the [Connected] button will appear.

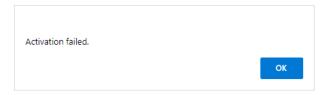


Move the mouse cursor over the [Connected] button to change the display to [Reactivate]. Clicking the button above will perform the activation.

If successful, the following dialog box will appear.



In case of failure, the following dialog box appears.



Save the settings to ROM of the controller and reboot the product.

4. Check Facility View communication logs

From CONPROSYS WEB Setting, go to [Menu] – [Status], and click the [Log]. In "FacilityView comm log", the last transmission history can be checked for each data identification code in the transmission settings.

FacilityView comm log CodeDev RET": 0, "BODY": {"code": "", "message": "", "data": ""}, "HEADERS": [["Content-Type", "application/json"], ["Content-Length", "34"], ["Connection"] CodePlc RET": 0, "BODY": {"code": "", "message": "", "data": ""}, "HEADERS": [["Content-Type", "application/json"], ["Content-Length", "34"], ["Connection"] CodeTag RET": 0, "BODY": {"code": "", "message": "", "data": ""}, "HEADERS": [["Content-Type", "application/json"], ["Content-Length", "34"], ["Connection"] CodeTag RET": 0, "BODY": {"code": "", "message": "", "data": ""}, "HEADERS": [["Content-Type", "application/json"], ["Content-Length", "34"], ["Connection"]

ID	Description	Notes
RET	Result of transmission to FacilityView	0 : Normal Non-zero : Error
BODY	Response body from FacilityView	
HEADERS	Response header from FacilityView	
STATUS	Response status code from FacilityView	200 : Normal termination Other than 200 : Error termination

Set Up Troubleshooting

This section describes how to check and solve the troubles when the product does not function properly.

1. If You Encounter a Problem?

Perform the following checks if you encounter a problem in the use of this product.

1. General

Check the LEDs on the front panel

- Check that PWR LED is on.
- Check that ST1 LED is flashing.

Check the network port LEDs

Check the LEDs on the UTP connector at the front of the unit.

The Link/Act LED lights up if the network cable is correctly connected to a hub.

If not, refer to the "Hardware Setup Guide" and check the connection.

The Link/Act LED will be flashing when communication is in progress via the network port.

◆ Use the ping command from a host computer and confirm that the server unit responds.

Ping the IP address of the server unit.

The server unit should respond if it is operating.

Example: The following response should be received when the server unit is set to IP address 10.1.1.101:

ping 10.1.1.101 < Enter > :

Reply from 10.1.1.101: bytes=32 time<10ms TTL=255

Reply from 10.1.1.101: bytes=32 time<10ms TTL=255

Reply from 10.1.1.101: bytes=32 time<10ms TTL=255

If you are unsure of the IP address of the server unit, you can restore the default factory settings (IP address 10.1.1.101) by turning on the power to the unit with SW1-2 switch on (left). (User/Password and Group settings start up with the ones specified by user.)

A CAUTION

If you turn off (right) SW1-2 switch, the product starts up with the previous settings that are saved to ROM.

You can restore the default factory settings by turning on the power to the unit with SW1-2 and SW1-3switches on (left).

A CAUTION

This also initializes all other settings.

◆ If your user name and password are not recognized when you connect from a browser on a host computer:

Both the user name and password are case sensitive (upper and lower case letters are treated as different). Make sure that the Caps Lock key is off and try again.

You can restore the default factory settings by turning on the power to the unit with SW1-2 and SW1-3 switches on (left).

A CAUTION

This also initializes all other settings.

 If the ping command receives a response but a "page not found" message appears when you try to connect from a browser.

Setup your browser as follows:

Proxy server setting

Set "do not use proxy server".

Dialup setting

Set "do not dial".

Product does not function properly

Contact CONTEC to have the product examined.

2. Data Transfer To The Server Problems

When the data cannot be transferred, check the following:

◆ NTP sever setting

Data will not be transferred if you fail to set up "Time sync setting" with NTP server at a time of booting.

Check whether the address of the "Synchronization server" is correct.

Check the result of "sync time" in the web server communication log in the system information.

♦ Service setting

If "Disable" is selected in the "Data transfer service", data cannot be transferred.

Check whether "Enable" is selected in the "Data transfer service" of the service setting.

Check the status of "Data transfer service" in the system information on the screen.

Data transfer URL setting

When you fail in transferring data to URL, LED "ST2" on the front panel illuminates.

Check whether the Data transfer URL is correct.

Check the result of "data transfer" in the web server communication log in the system information.

3. Monitoring Screen Creation And Display Problems

Monitoring screen does not display

Monitoring screens use JavaScript.

Confirm that your browser settings permit JavaScript to run.

Also, disable the Compatibility View in Internet Explorer.

4. Processing Task Creation And Display Problems

Cannot open monitoring or task edit screen.

The monitoring and task edit screens use JavaScript.

Confirm that your browser settings permit JavaScript to run.

Also, disable the Compatibility View in Internet Explorer.

Appendix

This section describes additional information of specification and the product.

Appendix =



Data is transferred to the server via "http" or "https".

Data is posted to the specified URL by the following parameters.

♦ Transfer Parameter List

Transfer Contents	Parameter 1	Parameter 2
Measured data file	file=data	filename=YYYYMMDDhhmmss.csv

♦ Response from a Web Server

Response	Description	Operation
Code: 200 X-AggregateInfo-Result: OK	Normal	Delete the files that are already sent.
Code: 400	Invalid ID,	Delete the files that failed to be sent.
Others	Authentication code error, Format error	Keep the failed files to resend.

♦ Telegram, e.g.

http Request
POST /XXXXX HTTP/1.1 <cr_lf></cr_lf>
User-Agent: XXXXX < CR_LF >
Host: 192.168.1.110 < CR_LF >
Accept: */* <cr_lf></cr_lf>
Content-Length: 40602 <cr_lf></cr_lf>
Expect: 100-continue < CR_LF >
Content-Type: multipart/form-data; boundary=43ac9283b67c39f1 <cr_lf></cr_lf>
Content-Disposition: form-data; name="data"; filename="201401011000.csv" < CR_LF >
Content-Type: text/plain;charset=UTF-8 <cr_lf></cr_lf>
<cr_lf></cr_lf>
[Measured data]
43ac9283b67c39f1 <cr_lf></cr_lf>
Content-Disposition: form-data; name="err"; filename="201401011000_e.csv " <cr_lf></cr_lf>
Content-Type: text/plain;charset=UTF-8 <cr_lf></cr_lf>
<cr lf=""></cr>

http Response (Normal)

HTTP/1.1 200 OK < CR_LF >

Server: Apache-Coyote/1.1 < CR_LF >

Content-Type: text/plain;charset=UTF-8<CR_LF>

Content-Length: XXXX < CR_LF >

Date: Wed, 01 Jan 2014 10:00:01 GMT<CR_LF>

X-AggregateInfo-Result: OK < CR_LF >

Connection timeout......20 seconds

Web Sever response timeout......60 seconds

Data Transfer Web Sever

Use the URL you specified in "Data transfer setting" - "Data transfer URL" in CONPROSYS WEB Setting.

♦ Cycle

Send data to Web server accordance with the "Cycle (min.)" you specified in Data transfer setting. The sending cycle can be chosen from the followings.

The Choice of Sending Cycles	
1 min. 5 min. 10 min. 15 min. 20 min. 30 min. 60min.	

- * The measuring cycle is 1 minute regardless of your choice of sending cycle. 1 datum is transferred when you choose 1 minute. 60 data are transferred when you choose 60 minutes.
- * When transferring data from the processing task that has been created, there is no limitation for sending cycles.

♦ Measuring Cycle

Measure data per minute. (Fixed)

* When transferring data from the processing task that has been created, there is no limitation for measuring cycle.

◆ Measured Data File

Group	Item	Description	Notes
Header	Terminal ID	X(7)9(6)	Serial number is listed
	Reservation		not used
Data 1- Data n			Measured data per minute Items are listed with "," (comma)
Footer	Reservation		not used
	Transfer type	9(1)	0: Normal transfer 1: Resent

^{*} Even when transferring data from the processing task that has been created, Header and Footer are attached to sending files.

Appendix ==

♦ Measuring Data

Formats differ depending on the products. See the list below to check the format corresponding to your product. When CDS2 format is set as "Enable", Cloud Key, Data, Time, and Millisecond are added at the beginning of the column.

When transferring data from the processing task that has been created, there is no format limitation.

CDS2 Format Is Set As Enable

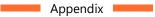
- CPS-MC341-ADSC1-111
- CPS-MC341G-ADSC1-111
- CPS-MC341G-ADSC1-110

- CPS-MC341-ADSC2-111
- CPS-MC341Q-ADSC1-111
- CPS-MC341-ADSC1-931

Column	Indication	Description
1	Cloud Key	Cloud Key that is set in the Data transfer setting
2	Date	Date of the data measured (YYYYMMDD)
3	Time	Time of the data measured (hhmmss)
4	Millisecond	Millisecond of the data measured (0-999)
5	DI-0	The value of digital input channel 0 (0 or 1)
6	DI-1	The value of digital input channel 1 (0 or 1)
7	DI-2	The value of digital input channel 2 (0 or 1)
8	DI-3	The value of digital input channel 3 (0 or 1)
9	CNT-0	The value of counter channel 0 (0 to 16777215)
10	CNT-1	The value of counter channel 1 (0 to 16777215)
11	DO-0	The value of digital output channel 0 (0 or 1)
12	DO-1	The value of digital output channel 1 (0 or 1)
13	AI-0	The value of analog input channel 0 (LSB) (0 to 4095) *-32768 to +32767 will be used when Industrial Value Conversion is enabled.
14	AI-1	The value of analog input channel 1 (LSB) (0 to 4095) *-32768 to+ 32767 will be used when Industrial Value Conversion is enabled.

- CPS-MC341-DS1-111
- CPS-MC341-DS2-111
- CPS-MC341-DS11-111

Column	Indication	Description
1	Cloud Key	Cloud Key that is set in the Data transfer setting
2	Date	Date of the data measured (YYYYMMDD)
3	Time	Time of the data measured (hhmmss)
4	Millisecond	Millisecond of the data measured (0-999)
5	DI-0	The value of digital input channel 0 (0 or 1)
6	DI-1	The value of digital input channel 1 (0 or 1)
7	DI-2	The value of digital input channel 2 (0 or 1)
8	DI-3	The value of digital input channel 3 (0 or 1)
9	DI-4	The value of digital input channel 4 (0 or 1)
10	DI-5	The value of digital input channel 5 (0 or 1)
11	DI-6	The value of digital input channel 6 (0 or 1)
12	DI-7	The value of digital input channel 7 (0 or 1)
13	DO-0	The value of digital output channel 0 (0 or 1)
14	DO-1	The value of digital output channel 1 (0 or 1)
15	DO-2	The value of digital output channel 2 (0 or 1)
16	DO-3	The value of digital output channel 3 (0 or 1)
17	DO-4	The value of digital output channel 4 (0 or 1)



Column	Indication	Description
18	DO-5	The value of digital output channel 5 (0 or 1)
19	DO-6	The value of digital output channel 6 (0 or 1)
20	DO-7	The value of digital output channel 7 (0 or 1)

• CPS-MC341-A1-111

Column	Indication	Description
1	Cloud Key	Cloud Key that is set in the Data transfer setting
2	Date	Date of the data measured (YYYYMMDD)
3	Time	Time of the data measured (hhmmss)
4	Millisecond	Millisecond of the data measured (0-999)
5	AI-0	The value of analog input channel 0 (LSB) (0 to 65535) *-32768 to +32767 will be used when Industrial Value Conversion is enabled.
6	AI-1	The value of analog input channel 1 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
7	AI-2	The value of analog input channel 2 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
8	AI-3	The value of analog input channel 3 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
9	AI-4	The value of analog input channel 4 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
10	AI-5	The value of analog input channel 5 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
11	AI-6	The value of analog input channel 6 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
12	AI-7	The value of analog input channel 7 (LSB) (0 to 65535) * -32768 to +32767 will be used when Industrial Value Conversion is enabled.
13	AO-0	The value of analog output channel 0 (LSB) (0 to 65535)
14	AO-1	The value of analog output channel 1 (LSB) (0 to 65535)

Appendix _____



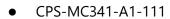
- CPS-MC341-ADSC1-111
- CPS-MC341G-ADSC1-111 •
- CPS-MC341G-ADSC1-110

- CPS-MC341-ADSC2-111
- CPS-MC341Q-ADSC1-111
- CPS-MC341-ADSC1-931

Column	Indication	Description
1	Date and time	Date and time of the data measured (YYYYMMDDhhmm)
2	DI-0	The value of digital input channel 0 (0 or 1)
3	DI-1	The value of digital input channel 1. (0 or 1)
4	DI-2	The value of digital input channel 2 (0 or 1)
5	DI-3	The value of digital input channel 3 (0 or 1)
6	CNT-0	The value of counter channel 0 (0 to 16777215)
7	CNT-1	The value of counter channel 1 (0 to 16777215)
8	DO-0	The value of digital output channel 0 (0 or 1)
9	DO-1	The value of digital output channel 1 (0 or 1)
10	AI-0	The value of analog input channel 0 (LSB) (0 to 4095)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
11	AI-1	The value of analog input channel 1 (LSB) (0 to 4095)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.

- CPS-MC341-DS1-111
- CPS-MC341-DS2-111
- CPS-MC341-DS11-111

Column	Indication	Description
1	Date and time	Date and time of the data measured (YYYYMMDDhhmm)
2	DI-0	The value of digital input channel 0 (0 or 1)
3	DI-1	The value of digital input channel 1 (0 or 1)
4	DI-2	The value of digital input channel 2 (0 or 1)
5	DI-3	The value of digital input channel 3 (0 or 1)
6	DI-4	The value of digital input channel 4 (0 or 1)
7	DI-5	The value of digital input channel 5 (0 or 1)
8	DI-6	The value of digital input channel 6 (0 or 1)
9	DI-7	The value of digital input channel 7 (0 or 1)
10	DO-0	The value of digital output channel 0 (0 or 1)
11	DO-1	The value of digital output channel 1 (0 or 1)
12	DO-2	The value of digital output channel 2 (0 or 1)
13	DO-3	The value of digital output channel 3 (0 or 1)
14	DO-4	The value of digital output channel 4 (0 or 1)
15	DO-5	The value of digital output channel 5 (0 or 1)
16	DO-6	The value of digital output channel 6 (0 or 1)
17	DO-7	The value of digital output channel 7 (0 or 1)



Column	Indication	Description
1	Date and time	Date and time of the data measured (YYYYMMDDhhmm)
2	AI-0	The value of analog input channel 0 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
3	AI-1	The value of analog input channel 1 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
4	AI-2	The value of analog input channel 2 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
5	AI-3	The value of analog input channel 3 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
6	AI-4	The value of analog input channel 4 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
7	AI-5	The value of analog input channel 5 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
8	AI-6	The value of analog input channel 6 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
9	AI-7	The value of analog input channel 7 (LSB) (0 to 65535)
		*-32768 to +32767 will be used when Industrial Value Conversion is enabled.
10	AO-0	The value of analog output channel 0 (LSB) (0 to 65535)
11	AO-1	The value of analog output channel 1 (LSB) (0 to 65535)

Appendix ==

Wireless I/O Module (920MHz) Data Format

* Set the "creating the CSV file of wireless I/O module" enabled in the sampling data receive setting of Master.

DIO-0404LY-WQ

Column	Indication	Description		
1	Cloud Key	Master serial number		
2	Date	Date of the data measured (YYYYMMDD)		
3	Time	Time of the data measured (hhmmss)		
4	Millisecond	Fix to 0		
5	DI-0	The value of digital input channel 0 (0 or 1)		
6	DI-1	The value of digital input channel 1 (0 or 1)		
7	DI-2	The value of digital input channel 2 (0 or 1)		
8	DI-3	The value of digital input channel 3 (0 or 1)		
9	DO-0	The value of digital output channel 0 (0 or 1)		
10	DO-1	The value of digital output channel 1 (0 or 1)		
11	DO-2	The value of digital output channel 2 (0 or 1)		
12	DO-3	The value of digital output channel 3 (0 or 1)		

AI-1004LY-WQ

Column	Indication	Description	
1	Cloud Key	Master serial number	
2	Date	Date of the data measured (YYYYMMDD)	
3	Time	Time of the data measured (hhmmss)	
4	Millisecond	Fix to 0	
5	AI-0	The value of analog input channel 0 (LSB) (0 to 1023)	
6	AI-1	The value of analog input channel 1 (LSB) (0 to 1023)	
7	AI-2	The value of analog input channel 2 (LSB) (0 to 1023)	
8	AI-3	The value of analog input channel 3 (LSB) (0 to 1023)	

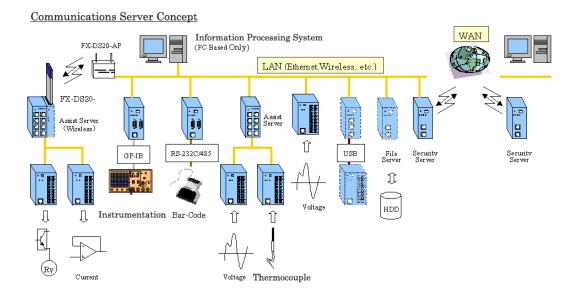
1.F&eIT Protocol Specifications

1. Communications Sever Concept

The proliferation of Internet connections has created numerous Ethernet-based LAN installations, which have enabled a large number of devices to access networks, resulting in the deployment of increasing numbers of FA and SOHO devices using this infrastructure. These devices, however, are mostly used as stand-alone units, which do not fully exploit the greatest advantage of networks: interconnectivity.

In view of the situation, CONTEC, drawing upon its network technology and I/O device expertise and their integration, is pleased to propose a communications server concept that organically links a wide range of devices, from WAN-based machines to remote I/O devices. In the following set of specifications, we define a common protocol that can be used in such a communications server.

♦ Communications Sever Concept-Overall Diagram



The following defines the common protocol layers that will be provided in all products based upon the communications server concept.

Such products, complying with the communications server specifications, will be able to access device information using the same protocol.

◆ The Role of the F&eIT Protocol

Application layer	ACX, DLL, etc
Device-dependent control layer	
F&eIT protocol layer	F&eIT protocol specifications
Transport layer	UDP, ICMP
Network layer	IP, ARP
Data link layer	Ethernet(IEEE802.3), etc.
Physical layer	

2. Basic Specifications

♦ Concepts

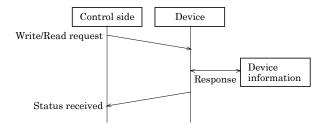
The F&eIT Protocol assigns all device resources (including resource, information) to virtual space so that any access to a device will be performed by specifying a virtual address. The virtual space is divided into information common to devices, device-specific information, I/O space, and memory space. The specific location in the virtual space where information is stored and the method by which information is stored is completely transparent with respect to where or how information is stored in actual physical resources.

00000000h - 000FFFFFh	Information common to devices (1MB)
00300000h - 003FFFFFh	I/O space (1MB)

♦ Data Communications Protocol

The F&eIT Protocol has a command response-type access procedure on the connectionless UDP/IP.

Response-type



◆ Frame Format

Using the UDP/IP port address 5007h, the F&eIT Protocol is installed in the data section.

The frame structure takes the format described below. Due to the header byte order conventions, the Ethernet, IP, and UDP are treated as Big Endians; all other entities are treated as Little Endians, for which components exerted by an x86 CPU hold priority.

Hea	der Name	Size (byte)	Remarks
Ethernet	Destination Address	6	Remote MAC address
section	Source Address	6	Local MAC address
	Type Field	2	Ethernet II
IP section	IP Ver4 Header	20	Fragment disabled
UDP section	UDP Header	8	Port Address 5007h Check Sum disabled
Communication	Identifier	2	"SV"
server section	Version	1	Version of the header structure
	Command	1	Command and the ACK flag
	Sequence number	2	Frame ID
	Response ID	2	Identifies the sender.
	Virtual address	4	Specifies a virtual address space.
	Access size	2	1436 bytes maximum
	Status	2	Result of command execution
	Access ID	8	Identifies the Read/Write privilege
	Remote MAC address	6	Specifies a remote MAC address when using IP multicasting.
	Reserved	6	Reserved for future use
	Data section	1436	Data area

Description of Communications Server Headers

(1) Identifier	Identifies the frame as a F&eIT Protocol frame.
(2) Version	Indicates the frame version.
(3) Command	The virtual address access command.
(4) Sequence no.	A counter that prevents the occurrence of duplicate frames, wherein the sequence number is incremented each time a packet is transmitted.
(5) Response ID	When a response-type command is transmitted, the contents of the response ID are copied to the response ID for the response frame.
(6) Virtual address Specifies the virtual address being accessed, e.g., device information read by specifying the address 0000h.	
(7) Access size Specifies the size of the data to be accessed, from 1 to a maximum bytes.	
(8) Status	Stores status information after the command is executed.
(9) Access ID	This is an ID for virtual address access control.

(10) Remote MAC address When data is read/written using IP Multicast, the MAC address of the remote device is set in this header. When data is to be sent to all devices on the network, the value ALL [F] is set in this header.

(For Unicast: "ALL [0]")

♦ Commands in Detail

The following command is set in the command section (Offset = 4 in the F&eIT Protocol header section.):

Command Structure

 7	6	5	4	3	2	1	0
ACK			Co	ommand (1 - 12	27)		

0 - 6bit represent the command; the MSB indicates a response frame (ACK).

7Bit = 0: command request

1: command response

Commands in Detail

Command	Command description	Туре	Remarks	
1	Reads from a virtual address	Response	Reads device information by specifying a virtual address.	
2	Writes to a virtual Response address.		Updates device information by specifying a virtual address.	
3	Transmits messages.	Response	Exchanges messages between devices.	
4	Reserved	Undefined	Undefined	
5	Reset	Response	Resets a device after returning a response frame.	
7 - 127	Reserved	Undefined	Undefined.	

Appendix =

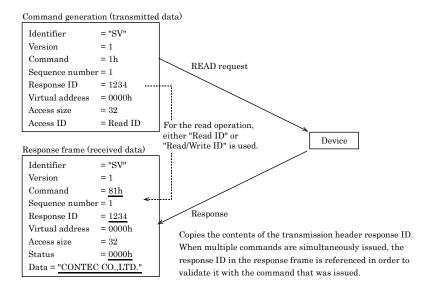
◆ Command-Issuing Procedures

Read a virtual address (command = 1)

A virtual address and its size are specified, and the frame is transmitted to the target device.

The result is received as a response frame with data.

(Example: reading a vendor name)

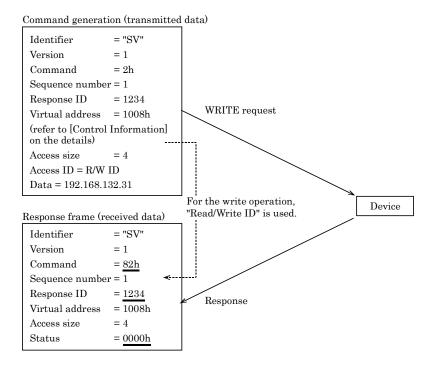


Appendix ==

♦ Writing to a virtual address (command = 2)

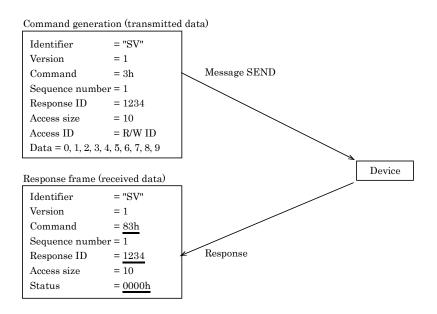
A virtual address, its size and data are specified, and the frame is transmitted to the target device. The result is received as a response frame status.

(Example: setting an IP address)



♦ Message transmission (command = 3)

Writes the message to be transmitted into the data section. The result is received as a response frame status. The maximum data size that can be transmitted per command is 1452 bytes. (Example: data transmission)



Response status

Following is a table of status information that is returned by response-type commands:

Code	Description	Remarks
0000h	Normal termination	
0001h	Access violation	An attempt was made to write to a Read-only area.
0002h	Area error	Access was made to an area not defined on the device.
0003h	Access size error	An access request greater than 1436 bytes was made.
0004h	Parameter error	Invalid parameter contents, such as receipt of a non-supported command.
0005h	Length error	Invalid transmission length, such as an inconsistent data size with the number of data items calculated from the UDP/IP.
0006h	Insufficient resources	Too many tasks are waiting for ACK data, causing a resource shortfall. The resources can be released by a timeout.
0029h	Output error	An error occurred during the write process to the device.
0040h	Message queue over error	Insufficient resources in the queue during the write process to the device.

3. Control Information

The F&eIT Protocol assigns all resources that are disclosed outside the devices to 32-bit virtual space. Following is a table of correspondence between virtual addresses and device information. Bytes order is Little Endian.

◆ Information Common to Devices

The following types of information are provided in all F&eIT Protocol-compliant devices:

Information Common to Devices (Example)

Address Size		Description	Remarks	
From 0000h -	32	R	Vendor name	"CONTEC CO., LTD."
OFFFh	32	R	Model	
	2	R	Equipment version	1.0
	2	R	Firmware version	1.0
	6	R	MAC address	00804C*****
	2	R	Installation function	Bit 0: I/O space Bit 1: Memory space Bit 2: reserved Bit 3: Message send Bit 4: Reset function Bits 5 and higher: reserved
	4	R	IP address	
	2	R	Product type	
	4	R	Reserved	
	2	R	F&eIT protocol version	
			Reserved	
From 2000h	4	R	Vendor name	Seconds
	4	R	Model	Counter
	4	R	Equipment version	Counter
	4	R	Firmware version	Counter
	4	R	MAC address	Counter
	4	R	Installation function	Counter
	4	R	IP address	Counter

Appendix _____

♦ I/O space

I/O information (Example)

- CPS-MC341-ADSC1-111
- - CPS-MC341Q-ADSC1-111 CPS-MC341G-ADSC1-110
- CPS-MC341-ADSC2-111
- CPS-MC341G-ADSC1-111

Address Size		Description	Remarks	
3A2900h	3A2900h 1 R		DI-0ch	bit0, bit1, bit2, bit3
	1	RW	DO-0ch	
	14	R	dummy	
	2	R	AI-0ch	LSB(0-4095)
	2	R	Al-1ch	
	12	R	dummy	
	4	R	CNT-0ch	LSB(0-16777215)
	4	R	CNT-1ch	
	8	R	dummy	

CPS-MC341-DS1-111

CPS-MC341-DS2-111

Address	Size		Description	Remarks
From 3A2900h	1	R	DI-0ch	
	1	RW	DO-0ch	
	14	R	dummy	

CPS-MC341-A1-111

Address	Si	ze	Description	Remarks
From 3A2900h	2	R	AI-0ch	LSB(0-65535)
	2	R	Al-1ch	
	2	R	AI-2ch	
	2	R	AI-3ch	
	2	R	AI-4ch	
	2	R	AI-5ch	
	2	R	AI-6ch	
	2	R	AI-7ch	
	2	R/W	AO-0ch	
	2	R/W	AO-1ch	

2.SD Card

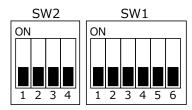
Inserting SD card in the product enables you to store measured data in the following folders.

Folder	Description	Folder Path
Task SD card folder	Store data collection files set in SD area of task.	SD/
Task SD backup folder	Store backup files created from task.	SD/backup/
Auto backup folder	Store backup files (json file and csv file) created by enabling Auto backup in Data transfer setting. Files of the previous day are compressed at 3:59 am once a day. The file name after compression is "Date.tgz". If there is no free space on the SD card, the compressed files will be deleted in order of oldest to newest date until a new compressed file can be created.	SD/cloudbackup/

^{*} Refer to the "**Reference Manual (Hardware)**" for inserting the SD card procedure.

3.DIP Switch

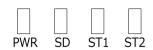
DIP switch details are described below.



SW	SW No.	Description				
SW1	6	System Reservation: Always OFF				
	5	System Reservation: Always OFF				
	4	System Reservation: Always OFF				
	3	2: OFF, 3: OFF The settings are the factory defaults.				
	2	2: ON, 3: OFF IP address setting starts up with factory defaults when the power is turned on, while user/password and group settings start up with a user's settings. The current IP address, user/password and group settings can be checked on the Web monitor.				
		2: ON, 3: ON Each setting will be initialized when the power is turned on. LED PWR and ST1 will flash upon the completion. Confirm the flashing and turn off the switch 2 and 3, then reboot.				
		2: OFF, 3: ON If the backup data is already in the SD card, the backup will be reflected on the data when the power is turned on. LED PWR and ST1 will flash upon the completion. Confirm the flashing and turn off the switch 3, then reboot.				
	1	Refer to the "Reference Manual (Hardware)".				
SW2	1 - 4	Refer to the "Reference Manual (Hardware)". *				

^{*} There is no SW2 on the CPS-MC341-A1-111 model.

4.LED



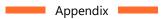
LED	Color	Operation	Description			
PWR	Green	ON	Power has been supplied.			
		OFF	Power has not been supplied.			
		Flashing	It indicates one of the followings - Setting is being written in ROM Completion of initialized setting.			
SD	Yellow	Flashing	It flashes at the time of SD access.			
		OFF	It indicates there is no SD access.			
ST1	Green	ON	Not assigned			
		OFF	OFF Not assigned			
		Flashing Software has been operated.				
		(Slow)				
		Flashing	It indicates one of the followings.			
		(Fast)	Task is being operated via CONPROSYS WEB Setting.Completion of initialized setting.			
ST2	Red	ON	Data transfer failed.			
		OFF	It indicates the system runs normally.			
		Flashing	- Task is being operated via CONPROSYS WEB Setting.			
		(Fast)				
Others			Refer to the "Reference Manual (Hardware)".			

5. Modbus Status Information

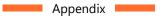
With the Modbus Slave function, status information can be obtained from CONPROSYS. For status information, use address 0x5000 or higher of the input register (function code 0x04). For CONPROSYS VTC, the same data can be obtained with the "system information" control.

System Information

Modbus Address	Item	Data Type	The number of words	Description
0x5000	NTP Result	unsigned short	1	The latest synchronization result with NTP server 0: synchronization fail 1: synchronization succeed
0x5001	NTP Date	char	8	The latest synchronization date with NTP server YYYYMMDDhhmmss+¥0¥0
0x5009	Uptime	unsigned long	2	OS up-time[sec]
0x500B	Transfer Result	unsigned short	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x500C	Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x5014	Transfer Info	char	7	The latest data transfer information HTTP status code, curl error code
0x501B	MailErrorTime	char	8	The latest mail transfer error time YYYYMMDDhhmmss+¥0¥0
0x5023	BuiltInPowerState	unsigned short	1	Digital input power setting 0: External power supply, 1: Built-in power supply
0x5024	SD Recognition	unsigned short	1	SD card recognition state 0: without SD card 1: with SD card 2: SD card error 3: write error
0x5025	SD Free	unsigned long	2	SD card free space [kbyte]
0x5027	FTP Transfer Result	unsigned short	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x5028	FTP Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x5030	FTP Transfer Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code
0x5037	Firmware Version		5	Maximum 8byte + ¥0¥0 of XX:YY:ZZ
0x503C	Serial Number		7	Serial NO(13byte) + ¥0
0x5043	MAC address		9	AA:BB:CC:DD:EE:FF 17byte + ¥0
0x504C	MAC address 2LAN		9	GW 2Lan model only
0x5055	Identification ID		6	CLOUD KEY(10byte) + ¥0¥0



Modbus Address	ltem	Data Type	The number of words	Description
0x505B	MQTT Communication Result	unsigned short	1	The latest MQTT communication result 0: Communication with the Broker fail 1: Communication with the Broker succeed
0x505C	MQTT Communication Error Time	char	8	The latest MQTT communication error time YYYYMMDDhhmmss + ¥0¥0
0x5064	GPS Communication State	unsigned long	1	GPS communication state 0: Error 1: Normal
0x5065	GPS Error Information	unsigned long	1	GPS error information 0: Normal 1: Localization quality error (\$GPGGA) 2: Checksum error
0x5066	GPS Error Time	char	8	GPS Error Time YYYYMMDDhhmmss + ¥0¥0
0x506E	GPS Latitude Information	Int32	2	GPS latitude information Multiply ddd.ddd format by ten to the sixth and enter it
0x5070	GPS Longitude Information	Int32	2	GPS longitude information Multiply ddd.ddd format by ten to the sixth and enter it
0x5072 - 0x5074	Reserved		3	Reserved
0x5075	SMS Send Result	unsigned long	1	The latest SMS send result 0 : Fail 1 : Succeed
0x5076	SMS Error Time	char	8	SMS send error time YYYYMMDDhhmmss+¥0¥0
0x507E	FTP Server 0 Transfer Result	unsigned long	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x507F	FTP Server 0 Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x5087	FTP Server 0 Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code
0x508E	FTP Server 1 Transfer Result	unsigned long	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x508F	FTP Server 1 Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x5097	FTP Server 1 Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code
0x509E	FTP Server 2 Transfer Result	unsigned long	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x509F	FTP Server 2 Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x50A7	FTP Server 2 Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code

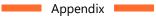


Modbus Address	Item	Data Type	The number of words	Description
0x50AE	FTP Server 3 Transfer Result	unsigned long	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x50AF	FTP Server 3 Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x50B7	FTP Server 3 Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code
0x50BE	FTP Server 4 Transfer Result	unsigned long	1	The latest data transfer result 0: Transfer fail, 1: Transfer succeed
0x50BF	FTP Server 4 Transfer Time	char	8	The latest data transfer time YYYYMMDDhhmmss+¥0¥0
0x50C7	FTP Server 4 Error Information	char	7	The latest FTP transfer information HTTP status code, curl error code
0x50CE - 0x50FF	Reserved		50	Reserved

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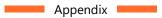


Modbus Address	Item	Data Type	The number of words	Description
0x5100	DataTransfer	unsigned short	1	Data transfer service state 0: OFF 1: ON
0x5101	ModbusTCP	unsigned short	1	Modbus TCP Sever state 0: OFF 1: ON
0x5102	ModbusSessions	unsigned short	1	The number of Modbus TCP Server sessions
0x5103	OPC UA Server	unsigned short	1	OPC UA Sever state 0: OFF 1: ON
0x5104	Task0State	unsigned short	1	Task0 start state 0: Run 1: Step Run Start 2: Step Run Wait 3: Stop
0x5105	Task0Scantime	unsigned long	2	Cycle [msec] at which task 0 executes the commands of coordinates (0, 0)
0x5107 - 0x513C	Task1-18State		54	Task1-18 start state and scan time * The start state is the same format as address 0x5104 *The scan time is the same format as address 0x5105
0x513D	Task19State	unsigned short	1	Task19 start state 0: Run 1: Step Run Start 2: Step Run Wait 3: Stop
0x513E	Task19Scantime	unsigned long	2	Cycle [msec] at which task 19 executes the commands of coordinates (0, 0)
0x5140 - 0x51FF	Reserved		222	Reserved



Controller Information

Modbus Address	Item Data Type		The number of words	Description
0x5200	Datetime	char	8	Current system date and time YYYYMMDDhhmmss+¥0¥0
0x5208 - 0x5210	Reserved		9	Reserved
0x5211	MemoryFree	unsigned long	2	MemoryFree [kbyte]
0x5213	File0Location	unsigned short	1	File 0 saving location setting 0: Ram, 1: SD card
0x5214	File0MaxSize	unsigned long	2	File 0 size setting [kbyte]
0x5216	File0CurSize	unsigned long	2	File 0 current size [kbyte]
0x5218	File1Location	unsigned short	1	File 1 saving location setting 0: Ram, 1: SD card
0x5219	File1MaxSize	unsigned long	2	File 1 size setting [kbyte]
0x521B	File1CurSize	unsigned long	2	File 1 current size [kbyte]
0x521D - 0x5271	File2- 18 information		85	Files 2-18 saving location setting, size setting, and current size *The saving location setting is the same format as address 0x5213. *The size setting is the same format as 0x5214. *The current size is the same format as 0x5216.
0x5272	File19Location	unsigned short	1	File 19 saving location setting
0x5273	File19MaxSize	unsigned long	2	File 19 size setting [kbyte]
0x5275	File19CurSize	unsigned long	2	File 19 current size [kbyte]
0x5277	WaitFiles(st)	unsigned short	1	The number of files in the folder (Send service) waiting to be sent
0x5278	WaitFiles(task)	unsigned short	1	The number of files in the folder (task) waiting to be sent
0x5279	WaitFiles(PLC)	unsigned short	1	The number of files in the folder (PLC) waiting to be sent
0x527A	WaitFiles (Child unit)	unsigned short	1	The number of files in the folder (Child unit) waiting to be sent
0x527B	WaitFiles(Azure)	unsigned short	1	The number of files in the folder (Azure) waiting to be sent
0x527C	WaitMails	unsigned short	1	The number of files in the folder with mails to be sent
0x527D	ResentFiles(st)	unsigned short	1	The number of files in the folder (Send service) waiting to be resent
0x527E	ResentFiles(task)	unsigned short	1	The number of files in the folder (Task) waiting to be resent
0x527F	ResentFiles(PLC)	unsigned short	1	The number of files in the folder (PLC) waiting to be resent



Modbus Address	ltem	Data Type	The number of words	Description
0x5280	ResentFiles(Child unit)	unsigned short	1	The number of files in the folder (Child unit) waiting to be resent
0x5281	ResentFiles(Azure)	unsigned short	1	The number of files in the folder (Azure) waiting to be resent
0x5282	ResentMails	unsigned short	1	The number of files in the folder with mails to be resent
0x5283	SW1-2	unsigned short	1	The state of 2 in DIP-SW 1 0: OFF 1: ON
0x5284	SW1-3	unsigned short	1	The state of 3 in DIP-SW 1 0: OFF 1: ON
0x5285	SW1-4	unsigned short	1	The state of 4 in DIP-SW 1 0: OFF 1: ON
0x5286	ResentFiles (MQTT)	unsigned short	1	The number of files in the folder (MQTT) waiting to be resent
0x5287	WaitFiles (CHS)	unsigned short	1	The number of files in the folder (Task-CHS) waiting to be sent
0x5288	ResentFiles(CHS)	unsigned short	1	The number of files in the folder (Task-CHS) waiting to be resent
0x5289	WaitFiles(SNS)	unsigned short	1	The number of files in the folder (SNS) waiting to be sent
0x528A	ResentFiles(SNS)	unsigned short	1	The number of files in the folder (SNS) waiting to be resent
0x5286 - 0x55FF	Reserved		885	Reserved

Special Functions

Modbus Address	Item	Data Type	The number of words	Description
0x5700	Timer (100ms)	unsigned short	1	Repeat 0 and 1 at 100ms interval
0x5701	Timer (1s)	unsigned short	1	Repeat 0 and 1 at 1sec interval
0x5702	Timer (10s)	unsigned short	1	Repeat 0 and 1 at 10sec interval
0x5703 - 0x57FF	Reserved		253	Reserved

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Modbus Address	Item	Data Type	The number of words	Description
0x6000 - 0x607F	Product Name	String	128	Rely on CNC DPRNT description
0x6080 - 0x6081	Product Result Number	Int32	2	
0x6400 - 0x6427	Value01-10	Double	4 x 10	
0x6500 - 0x69FF	String01-10	String	128 x 10	
0x6A00 - 0x6AFFF	Print Output	String	256	
0x6B00 - 0x6BFFF	Blank		1280	

6.COM Setting

The names of COM port displayed on CONPROSYS WEB Setting and the corresponding names of the devices are described below.

CONPROSYS WEB Setting	Device
СОМ00	COM A
COM01	COM B
COM02	СОМ С

7.MQTT Publish and Subscribe Data Format

1. MQTT Publish Data Format

In MQTT Publish, data are sent in the following format.

The format differs depending on the payload setting that has been set in MQTT Publish.

◆ When "JSON" is specified for "payload" setting

The character code is sent in UTF8.

Sending data example 1 (JSON format)

ltem	Description			
(Header)				
UUID	A unique message ID This is used to determine duplicating messages when QoS 1 is set.			
Т	A time stamp in ISO8601 extended form			
SN	The serial number of the product			
CK	Cloud Key This will not be sent when the cloud key is not set.			
DATA				
ID	Sending data ID (TAG,MODBUS,DEVICE)			
NE	Item name This will not be sent when the item name is not set.			
V	Sending values			

When the algorithm is selected in MQTT Connection settings, data are sent in the following format. The character code is sent in UTF8.

Sending data example 2 (JSON format, Encryption algorithm)

Item	Description		
ALG	Encryption algorithm "AES-256-CBC.BASE64.NOSALT" can be used.		
E_DATA	Encrypted data		

♦ When "STAG" is specified for "payload" setting

The contents set in STAG are sent.

When the algorithm is selected in MQTT Connection settings, the contents are sent after its encryption.

2. MQTT Resend File Format

When the "Resend setting" is selected in MQTT Publish, and the product is disconnected from the Broker, data will be kept in the following format.

One content of sending data is set as one line, and stored separately per hour. Resending data can be stored for three days up to 16MB. If the data exceeds 16MB, the oldest data in each CloudKey will be deleted.

Data are sent one line by one line when the product is reconnected with the Broker, and they will be deleted upon sending completion.

[File name]: {Cloud Key_}YYYYMMDDHH.csv

[Resend File Format (When "JSON" is specified for "payload" setting)]:

Sending data (JSON format)CRLF Sending data (JSON format)CRLF...

[Resend File Format (When "STAG" is specified for "payload" setting)]:

MM:SS, Sending data (BASE64 format)CRLF

MM:SS, Sending data (BASE64 format)CRLF...

^{*}Only results of decoded sending data (BASE64 format) are sent one line by one line when the product is reconnected with the Broker.

3. MQTT Subscribe Data Format

In MQTT Subscribe, data are received in the following format.

The format differs depending on the payload setting that has been set in MQTT Subscribe.

◆ When "JSON" is specified for "payload" setting

UTF8 should be used to identify the character code accurately.

Receiving data example 1 (JSON format)

Item	Description				
(Header)					
UUID	A unique message ID When QoS 1 is set and duplicating messages are received, the contents will not be written afterward.				
Т	A time stamp in ISO8601 extended form. The "Process only new data" setting can be used to process the newer data since the previous processing.				
СК	Cloud Key Set a null character when the cloud key is not set. This will not be written when the unset cloud key is received.				
DATA					
ID	Receiving data ID (TAG,MODBUS,DEVICE) This will not be written when the unset data are received.				
V	Receiving values				

When the algorithm is selected in MQTT Connection settings, data are received in the following format.

UTF8 should be used to identify the character code accurately.

Receiving data example 2(JSON format, Encryption algorithm)

Item Description		
ALG*	The inside of the "E_DATA" key is decrypted with the specified encryption algorithm. "AES-256-CBC.BASE64" or "AES-256-CBC.BASE64.NOSALT" can be used.	
E_DATA	Encrypted data	

- * When there is no "ALG" key, the inside of the "E_DATA" key will be decrypted with the "encryption algorithm" set in the receiving side of the CONPROSYS.
- * The contents of "DATA" key will be processed when there is neither "ALG" key nor "E_DATA" key and there is unencrypted "DATA" key.

♦ When "STAG" is specified for "payload" setting

The received contents are written in STAG.

When the algorithm is selected in MQTT Connection settings, the encrypted contents are received, then decrypted. The contents are written into STAG when decryption succeeds.

8.MQTT Communication Log

The following tables list some of the messages displayed in the [MQTT comm log] in [Status] – [log] on the CONPROSYS WEB Setting.

1. COMMUNICATION LOG

Log Contents	Description		
host not entered.	The service in MQTT Client is enabled without setting the MQTT connections. Please configure the MQTT Connection settings.		
No route to host	The product is unable to connect with the Broker as the connecting destination cannot be found.		
Connection timed out	Connection with the Broker has been timed out. (60sec)		
Lookup error.	Host names' lookup failed.		
Please set the time synchronization.	MQTT Client service is unable to start since time has not been set. Check the Time setting. MQTT Client service starts once the time is set.		
Broker disconnected.	The product was disconnected from the Broker. Attempting to reconnect with the Broker.		
The connection was lost.	The connection with the Broker was lost. Check the settings of the CONPROSYS or Broker specification.		
Connection Refused: not authorized.	User/Password failed to be authorized when configuring the User/Password Authorization settings. Check the User/Password settings.		
Not using password since username not set.	The configured password cannot be used since the username has not been set. Set the username in order to use the User/Password Authorization settings.		
A TLS error occurred.	The required file for encrypted connection is incorrect in the "Encrypted connection" setting. Check the encrypted connection.		
Different receive Cloud Key settings.(Cloud Key)	Unable to process since there is no Cloud Key in the receiving data. Check the data format or the receiving settings.		



Log Contents	Description			
Publishing failed because the time has not been set.	Publishing failed since time has not been set. Check the Time setting.			
Delete resend file. Resend directory is full. (Deleted file name)	Since the Resend folder is full reaching the maximum of 16MB, the old resend file in related Cloud Key has been deleted.			
Resend file write false. Resend directory is full.	Since the Resend folder is full reaching the maximum of 16MB, writing the resend file failed. The capacity is occupied with the resend file from other Cloud Key.			
File remove false. (File name)	 Deleting the resend file failed. The capacity of the resend folder became full reaching the maximum of 16MB while sending the resend file, and tried to delete that file but failed. This happens when Resend "Resend data -> Latest data" is set for Resend setting. 			
It contains an invalid value. (Data name)	The specified data cannot be sent since an invalid data name is set. Check the data name in the Sending Settings.			
Calc formula error: (Error contents). (Data name)	Since calculating failed, the data cannot be sent. Check the Calculation formula set in the stated data.			

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Log Contents	Description		
There is no json in the received data.	The received string is not in JSON format. Check the data format.		
There is no DATA in the received json.	There is no "DATA" key in the received string. Check the data format.		
Different receive data settings. (Data name)	The received data cannot be processed since that data are not set in the Receiving Settings. Check the data format and the data name in the Receiving Settings.		
It contains an invalid value. (Data name)	An invalid data name is set. Check the data format and the data name in the Receiving Settings.		
Different topic settings.	The received data cannot be processed since that data have been received from a different TOPIC. Check the Receiving Settings or TOPIC in the Sending side.		
Since there is no time stamp, all received data is processed.	When the setting is "Process only new data" and there is no appropriate time stamp, all data will be processed. Add an appropriate timestamp into the data format.		
Since the time zone is invalid, it is processed as local time.	When the setting is "Processing only new data" and the time zone is invalid, the data are processed in local time zone of the product. Add an appropriate time zone to the data format.		
Receive payload decrypt false.	The received string is encrypted and failed to decrypt it. Check the encrypted string and encryption algorithm in data format.		
There is invalid ALG in the received json. Use config ALG.	Since there is no valid algorithm in the received string, data will be decrypted with the algorithm set in the Connection settings.		
Calc formula error: (Error contents).(Data name)	Since calculating failed, the data cannot be processed. Check the Calculation formula set in the related data.		

9.SMS Send Log

This section describes a message example that appears in the [SMS Send log] in [Log] on the CONPROSYS WEB Setting.

♦ Log Contents Of SMS Send Results

Log Contents	Description
Successfully sent SMS to 'phone number'	Sending a SMS message to the phone number succeeded.
Failed to send SMS to 'phone number' (Error contents)	Sending a SMS message to the phone number failed. (The 'phone number' part is not shown when the phone number was unspecified and sending a message failed)

♦ Error Contents When SMS Send Failed

Error Contents	Description
Empty phone number	The phone number to send a message is unspecified.
Empty message	The message contents are empty.
Reached limits of sending SMS per day	The number of sending messages has reached the limit of the day.
Timeout occurred	Timeout occurred for sending a SMS message.
Unexpected AT command response received	SMS send sequence error, received an unexpected response.
Send multiple SMS at the same time	Send multiple SMS messages at the same time. (There are other instances executing tool for SMS Send)
Internal error (Error number)	A SMS Send function internal error
Unknown return code (Error number)	An unknown internal error
Module error number and contents	CMS error or CME error contents

♦ For Resending a SMS Message

SMS messages can be resent when SMS Send failed due to the following error cases. (except when the communication function is in standby mode)

CPS-MC341G-ADSC1-110

Error Contents		
+CMS ERROR: 302, Operation not allowed		
+CMS ERROR: 331, No network		
+CMS ERROR: 512, SIM not ready		

10. Industrial Value Conversion

Analog values can be converted into industrial values by specifying in the Device setting.

When the "measurement value" is selected in [Data type], the analog input value will be the one obtained in the range of the resolution (unit: LSB).

When the industrial value conversion is selected, the value will be the converted one set in the Minimum/Maximum value and the Minimum/Maximum value of industrial value conversion.

Setting Example 1: Measurement Value

The product model: CPS-MC341-ADSC1-931

Data type in Default : As for measurement values, sensor values connected to analog input signals are obtained in units of LSB.

[Analog Input Settings]

Channel	?	0
Sampling count	3	1
Data type	3	Measurement value(0 - 65535) ✓
Minimum value[mA]	3	0
Maximum value[mA]	3	20
Minimum value of industrial value conversion	?	-32768
Maximum value of industrial value conversion	?	32767

[Measurement value]

Input value [mA]	Measurement value	Measurement value
0	0	value
1	205	4096 3840
2	410	3584 —
3	614	3072 ————————————————————————————————————
4	819	2560 ————————————————————————————————————
5	1024	2048
6	1229	1792 1536
7	1433	1280 1024
8	1638	768 512
9	1843	256
10	2048	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
11	2252	Input value [Unit : mA]
12	2457	
13	2662	
14	2867	
15	3071	
16	3276	
17	3481	
18	3686	
19	3890	
20	4095	

Setting Example 2 : Current Value

The product model: CPS-MC341-ADSC1-931

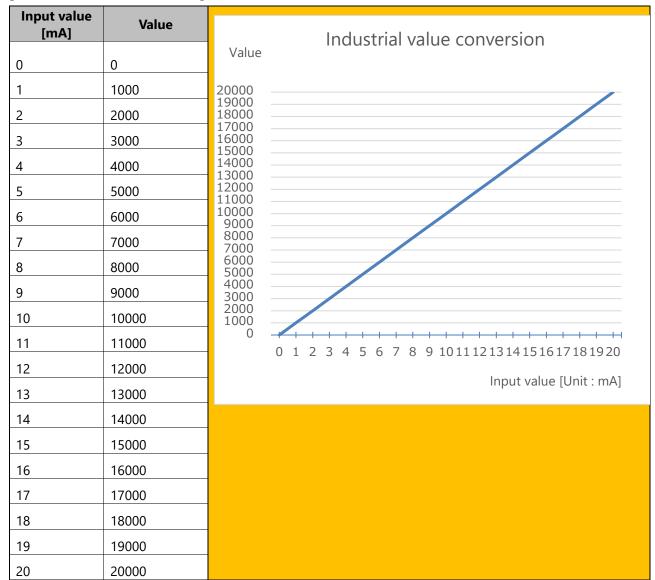
The following is a setting example when converting the measurement values of sensor connected to analog input channel 0 to current values.

Analog input values will be converted in units of 0.001mA.

[Analog Input Settings]

Channel	?	0
Sampling count	3	10
Data type	?	Industrial value conversion(-32768 - 32767) 🗸
Minimum value[mA]	?	0
Maximum value[mA]	3	20
Minimum value of industrial value conversion	?	0
Maximum value of industrial value conversion	?	20000

[Industrial value conversion]



Setting Example 3 : Voltage Value

The product model: CPS-MC341-A1-111

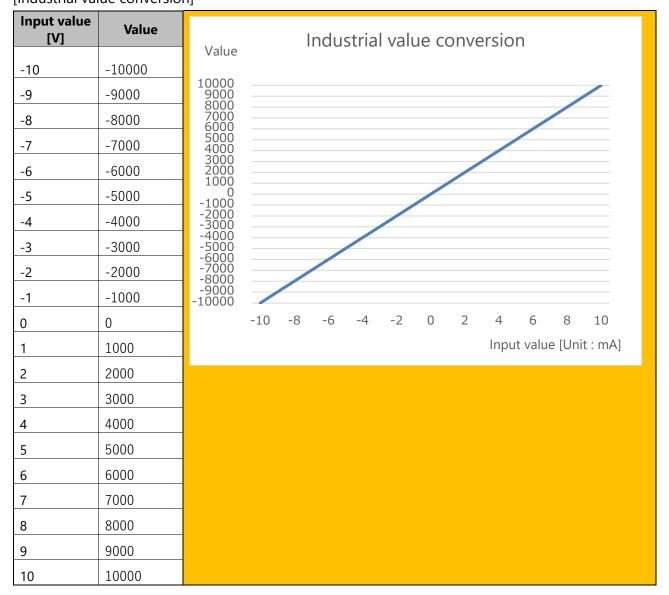
The following is a setting example when converting the measurement values of sensor connected to analog input channel 0 to voltage values.

Analog input values will be converted in units of 0.001V.

[Analog Input Settings]

Channel	?	0
Sampling count	?	10
Data type	?	Industrial value conversion(-32768 - 32767) ▼
Minimum value[V]	?	-10
Maximum value[V]	3	10
Minimum value of industrial value conversion	?	-10000
Maximum value of industrial value conversion	?	10000

[Industrial value conversion]



Setting Example 4 : Connection With a Pyranometer of DC4-20mA Outputs

The product model: CPS-MC341-ADSC1-111

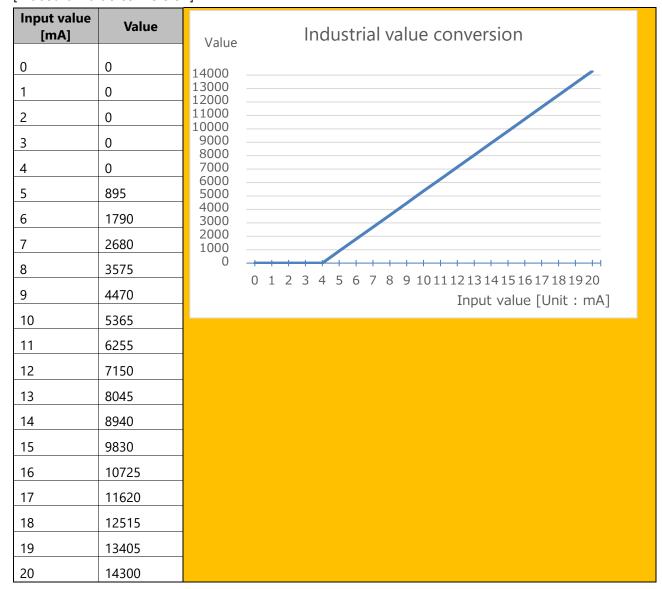
The following is a setting example when connecting the analog input channel 0 with a pyranometer of DC4-20mA outputs and a measurement range of 0 to1.43kW/m².

Analog inputs value will be converted in units of 0.1W/m².

[Analog Input Settings]

Channel	3	0
Sampling count	?	10
Data type	?	Industrial value conversion(-32768 - 32767) ▼
Minimum value[mA]	?	4
Maximum value[mA]	?	20
Minimum value of industrial value conversion	?	0
Maximum value of industrial value conversion	3	14300

[Industrial value conversion]



Setting Example 5 : Connection With a Thermometer of DC1-5V Outputs

The product model: CPS-MC341-A1-111

The following is a setting example when connecting the analog input channel 0 with a thermometer of DC1-5V outputs and a measurement range of -20 to +100°C.

Analog input values will be converted in units of 0.01°C.

[Analog Input Settings]

Channel	?	0
Sampling count	?	10
Data type	?	Industrial value conversion(-32768 - 32767) 🗸
Minimum value[V]	?	1
Maximum value[V]	?	5
Minimum value of industrial value conversion	?	-2000
Maximum value of industrial value conversion	?	10000

[Industrial value conversion]

Input value [V]	Value	Industrial value conversion
-10	-2000	value
-9	-2000	10000
-8	-2000	8000 — 7000 — 7000 — 7000
-7	-2000	6000 —————
-6	-2000	5000 — 4000 — — — — — — — — — — — — — — —
-5	-2000	3000
-4	-2000	2000
-3	-2000	0
-2	-2000	-1000 -2000
-1	-2000	-10 -8 -6 -4 -2 0 2 4 6 8 10
0	-2000	Input value [Unit : mA]
1	-2000	
2	1000	
3	4000	
4	7000	
5	10000	
6	10000	
7	10000	
8	10000	
9	10000	
10	10000	

Customer Support and Inquiry

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Revision History

MONTH YEAR	Summary of Changes
June 2018	The First Edition
June 2019	The functions "User's Restrictions" and "Tag Edit" are added in the [CONPROSYS WEB Setting] menu.
March 2020	The function menus of "MQTT Publish and Subscribe" are added.
April 2020	Specifying and function for destination service are added in data transfer settings.
August 2020	Some function of "MQTT Publish and Subscribe" are added.
November 2020	The function menus of "SMS" are added.
December 2020	The function menus of "Industrial Value Conversion" are added.
February 2021	Task controls and Modbus status information are added.
March 2022	The functions "Forced Reboot" and "Repair SD and Reboot" are added.
May 2022	The functions "Router Function" and "IP Filter" are added.
August 2023	The functions "Wireless LAN" are added.
September 2023	The functions "FacilityView Connection" and "FacilityView Transfer" and "Connecting to FacilityView" are added.
September 2024	The functions "Certificate" are added.
January 2025	The "MTConnect DataItem specification" has been partially added.
May 2025	Partially modified "OPC UA Server settings".
June 2025	Function of server data setting is added to OPC UA server setting.

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