Magnescale®

EtherNet/IP インターフェイスユニット メインモジュール /
EtherNet/IP Interface unit Main module

MG70-EI

お買い上げいただき、ありがとうございます。
ご使用の前に、この取扱説明書を必ずお読みください。
ご使用に際しては、この取扱説明書どおりお使いください。
お読みになった後は、後日お役に立つこともございますので、必ず保管してください。

Read all the instructions in the manual carefully before use and strictly follow them.
Keep the manual for future references.

取扱説明書 / Instruction Manual

SAFETY PRECAUTIONS

● Definition of Precautionary Information

⚠ **Caution**	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

● Cautions

⚠ **Caution**	
Do not attempt to take any unit apart while the power is being supplied. Doing so may result in electric shock.	
Do not attempt to disassemble, repair, or modify any units. Any attempt to do so may result in electric shock.	
● Do not use the product at voltages other than the specified power voltage. This could result in a fire or electric shock. ● Do not perform installation work with wet hands. This could result in an electric shock. ● Do not disassemble or modify the product. This could result in a burn or other injury. Disassembling or modifying the product will void the warranty. ● Do not damage, modify, excessively bend, pull on, place heavy objects on or heat the cable. This could damage the cable and result in a fire or electric shock.	

PRECAUTIONS FOR SAFE USE

- Take all possible safety measures when mounting the product and operating a mounted device.
- When connecting and disconnecting a signal cable, be sure to grasp by the plug section, not the cable.
- The product does not have an explosion-proof structure. Therefore, do not use the unit in an atmosphere containing flammable gas. This could result in a fire.
- If anything unusual (smoke, sound, smell, etc.) occurs during installation or operation, immediately unplug connection cables and contact the Service Center. Continued usage in this situation can result in a fire, electric shock, or breakdown.

PRECAUTIONS FOR CORRECT USE

- Connect cables to the unit property as shown in the instruction manual. Not doing so may result in a failure of the unit.
- Do not install the unit in the following places:
  - Locations subject to direct sunlight
  - Locations subject to temperatures or humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, acid, oil, or chemicals
  - Locations subject to shock or vibration
- Take appropriate and sufficient countermeasures when using the unit in the following locations:
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power supplies
- Do not drop the product to the ground or expose to excessive vibration or mechanical shocks. The product may be damaged and may not function properly.
- Use a dedicated packing box to transport the unit. Avoid excessive shock or vibration during transportation.
- Wire the unit properly as shown in the instruction manual.

Contents

1. Introduction

The MG70-EI is a EtherNet/IP Interface unit Main module created by Bernecker + Rainer Industrie Elektronik (hereafter, B&R) and sold by Magnescale Co., Ltd.

This manual describes the operation necessary in the Rockwell Automation development environment (Logix Designer) when introducing the MG70-EI, MG71-CM and digital gauges.

For information concerning the MG70-EI and MG71-CM, refer to the corresponding device specifications available on the B&R website.
Also, for information concerning Logix Designer, refer to the corresponding Rockwell Automation manual and Help function of Logix Designer.

2. Basic Information

EtherNet/IP uses the terms “scanner” and “adapter” in place of “master” and “slave”, respectively.

This section shows the adapter (MG70-EI) side components used in the descriptions in this manual, and the connection configuration of the various equipment.

2.1. Equipment used

Table 2-1 List of equipment used on the adapter side

Magnescale model name	B&R model number	Description	Appearance	Qty.
MG70-EI	X20BC0088 ×1 X20BB80 ×1 X20PS9400 ×1 X20TB12 ×1	EtherNet/IP Interface unit Main module (adapter)		1
MG71-CM	X20DC11A6 ×1 X20BM11 ×1 X20TB12 ×1	Counter module		1
		Supplied cable used to connect a Counter module and a digital gauge * When shipped from the factory, the loose wire side of the supplied cable is connected to the Counter module.		1
DK800S Series or DK10/25/50/100 Series		Digital Gauge - DK800S Series		1
		Digital Gauge - DK10/25/50/100 Series		

2.2. Equipment connection configuration

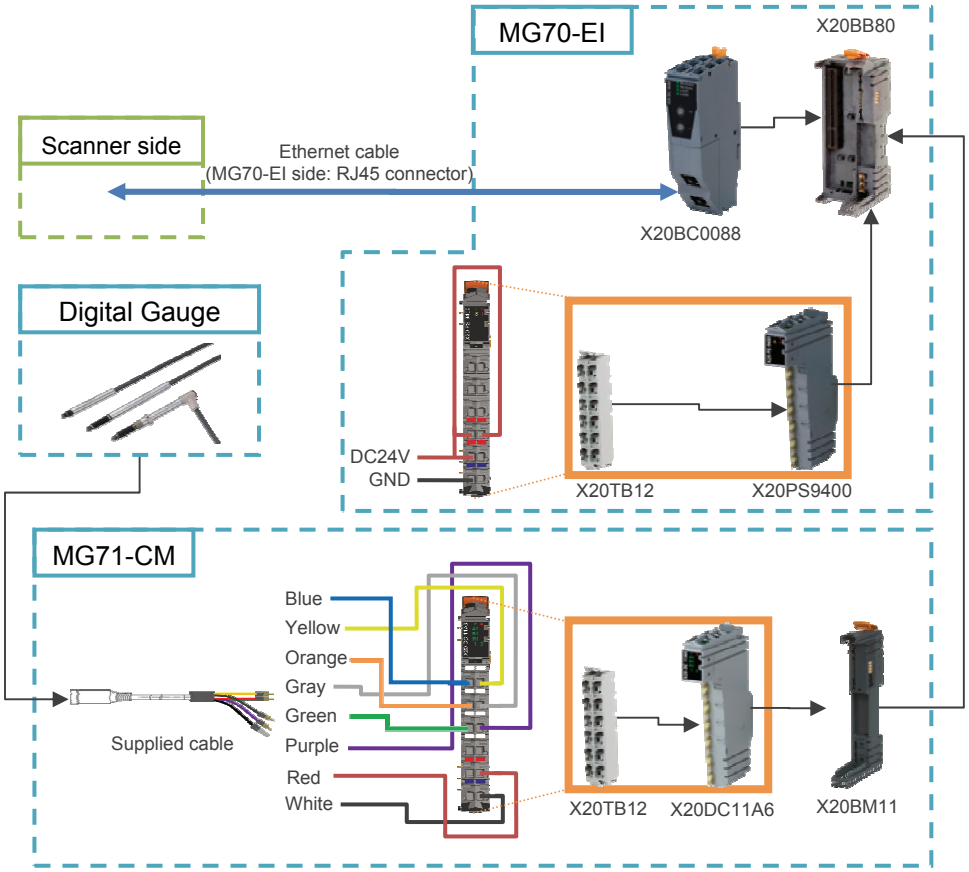

Fig 2-2 Adapter side connection diagram

The Ethernet cable used to connect the scanner side and the MG70-EI should be shielded in accordance with the operating environment. Use a shielded RJ45 (8P8C) connector as the MG70-EI side connector.

3. Downloading the necessary files

1. Access the Magnescale website
   (http://www.magnescale.com/mgs/language/english/), and select:
   "Products"
   → "Digital Gauge"
   → "MG70/71"
   → "Software"
   Click "Download" of the MG70-EI corresponding to the number of MG71-CM to be used, and download the file.

2. Save the downloaded file in the appropriate location, and extract the file using file extraction software.

4. MG70-EI (X20BC0088) main unit settings

4.1. IP address settings

The main unit IP address settings are made using the X20BC0088 Web server function.

Check the following items before making the settings.

- The number of nodes switch of the X20BC0088 should be set to “0xFF” before supplying power to the X20BC0088.
- The development computer and the X20BC0088 should not be connected.
  * This is to prevent IP address conflict between the development computer and the X20BC0088.

1. Temporarily set the IP address of the development computer to “192.168.100.2” and the subnet mask to “255.255.255.0”.

2. Use an Ethernet cable to directly connect the development computer and the X20BC0088.

3. Start up a Web browser such as Internet Explorer.

4. Enter “192.168.100.1” in the URL field and access that IP address.
   This operation enables access of the X20BC0088 Web server.

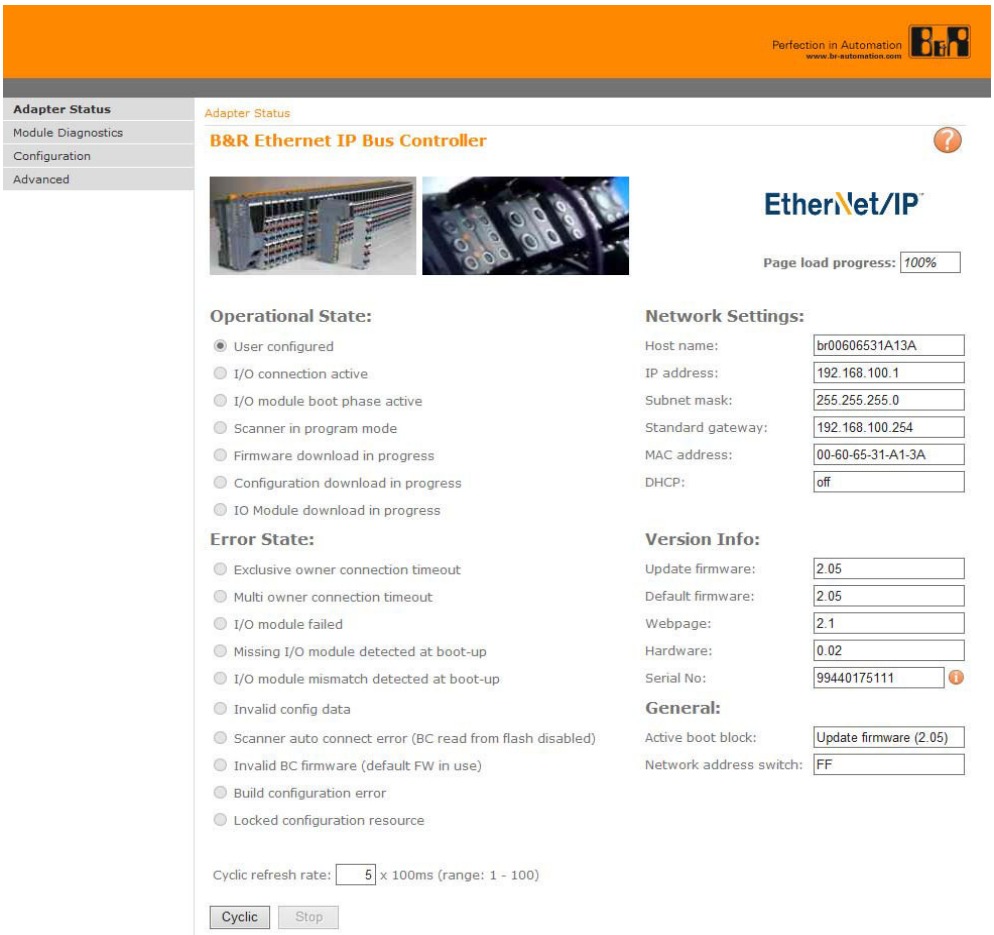

Fig 4-1 X20BC0088 -- IP address setting -- No.1

5. Select “Advanced” from the left menu, and select “Set Network Parameters” from the expanded menu.

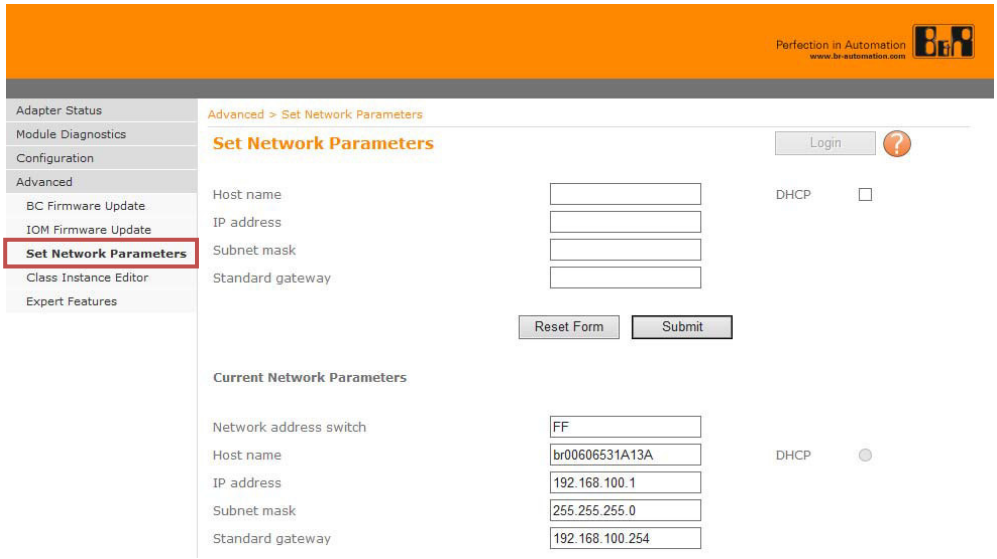

Fig 4-2 X20BC0088 -- IP address setting -- No.2

6. Click “Login”.
   Set “Username” to “admin” and “Password” to “X20BC0088” , and click “Login”.
   * The username and password can be changed from “Advanced” after login.

7. Click “Reset Form”.
   The default network parameters are automatically entered.
   After that, set “Host name”, “IP address”, “Subnet mask”, and “Standard gateway” to the desired values (the values to be used with the actual network), and click “Submit”.
   * In the example in this manual, “IP address” is set to “192.168.0.100” and “Subnet mask” is set to “255.255.255.0”.
   When using a router, set “Standard gateway” to the IP address of the router.

Fig 4-3 X20BC0088 -- IP address setting -- No.3

8. Turn off the X20BC0088 power, set the number of nodes switch to “0x00”, and then turn the power back on again.

9. Set the network parameters of the development computer to arbitrary values within the range that can be accessed relative to the network parameters set in step 7 above.
   *In this manual, “IP address” is set to “192.168.0.1” and “Subnet mask” is set to “255.255.255.0”.

10. Enter the IP address set in step 7 above in the URL field of the Web browser, and check that the X20BC0088 Web server can be accessed.
    Also check that the “IP address” and other values of “Network Settings” on the “Adapter Status” page have been changed to the values set in step 7.

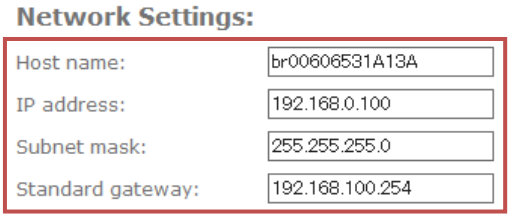

Fig 4-4 X20BC0088 -- IP address setting -- No.4

4.2. Downloading the configuration file

1. Access the X20BC0088 Web server from the Web browser.
   * In the example in this manual, “192.168.0.100” is accessed.

2. Select “Configuration” from the left menu.

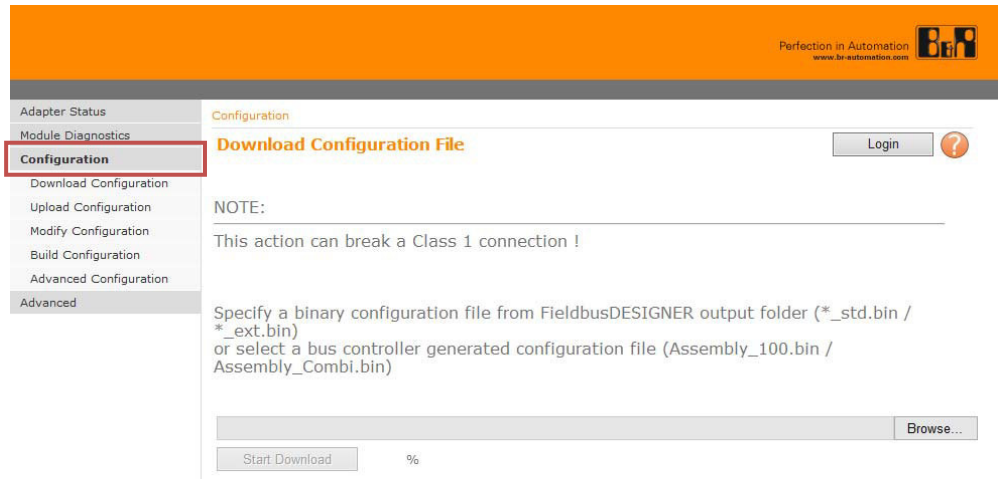

Fig 4-5 X20BC0088 -- Downloading the configuration file -- No.1

3. Click “Login” to log in.
   * At the factory defaults, “Username” is “admin” and “Password” is “X20BC0088”.

4. Click “Browse…” and select the configuration file (filename extension “bin”) downloaded in section 3 above.

Fig 4-6 X20BC0088 -- Downloading the configuration file -- No.2

5. Click “Start Download”.
   The selected configuration file will be downloaded to the X20BC0088.
   The X20BC0088 will automatically restart after the download is completed.

5. Operations to be performed using Logix Designer

The description in this section uses the Rockwell Automation "Logix Designer V27.00" as the development environment.

This description also uses the Rockwell Automation (Allen-Bradley) 1769-L18ER-BB1B (CPU, EtherNet/IP scanner) as the network element. The network is constructed locally, and the IP address of each element is set as a static IP address as shown below.

Table 5-1 IP address settings of various equipment used in the description of Logix Designer introduction

Equipment name	IP address	Subnet mask value
Development computer	192.168.0.1	255.255.255.0
1769-L18ER-BB1B (CPU, EtherNet/IP scanner)	192.168.0.10	
X20BC0088 (EtherNet/IP adapter)	192.168.0.100	

5.1. Importing L5K file

1. Start up Logix Designer, and select "File" → "Open…" from the menu.
   After that, a file-selection window will be displayed.

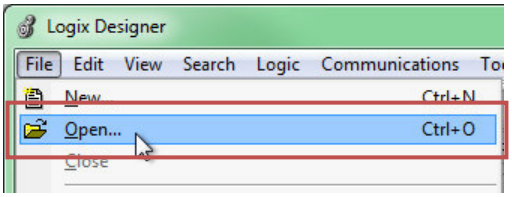

Fig. 5-1 Logix Designer -- Importing L5K file -- No.1

2. Select the L5K file downloaded in section 3 above.
   Project save will be requested, so save the project in the appropriate location.
   * If controller change is requested when saving the project, select any controller from the list. (The subsequent procedure is the same regardless of the selection.)

3. When the above procedure is performed, a Logix Designer project file (ACD file) based on the L5K file contents will be created and automatically open.

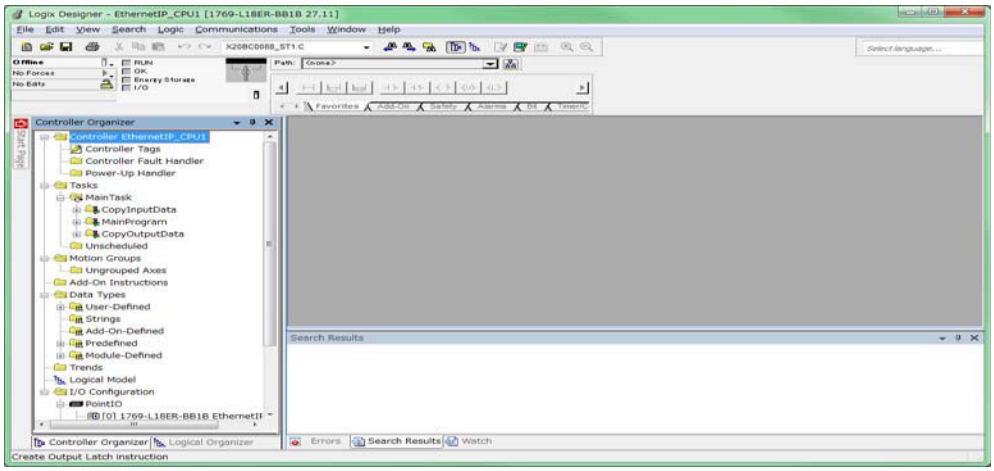

Fig. 5-2 Logix Designer -- Importing L5K file -- No.2

5.2. Reflection to an existing project

1. Start up two Logix Designers, open the project created in section 5.1 above in one Logix Designer, and open an existing project (or a new project) in the other Logix Designer.
   * This manual describes the opening of a new project.

2. Select “ETHERNET-MODULE ST1” under “I/O Configuration” in the project created in section 5.1 above, and drag and drop it to “Ethernet” of the new project.

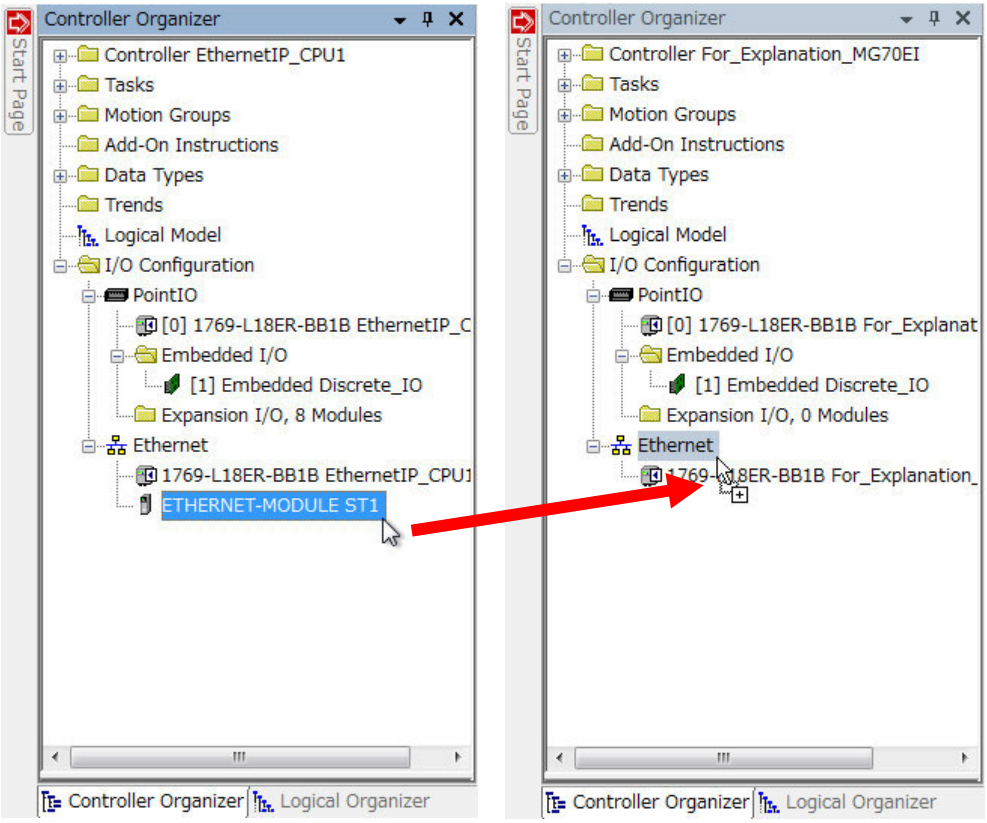

Fig. 5-3 Logix Designer -- Reflection to an existing project -- No.1

3. With the same operation, move “CopyInputData” and “CopyOutputData” under “Tasks” to the existing project side. Likewise, move “ST1_INPUT” and “ST1_OUTPUT” under “Data Types” to the existing project side.

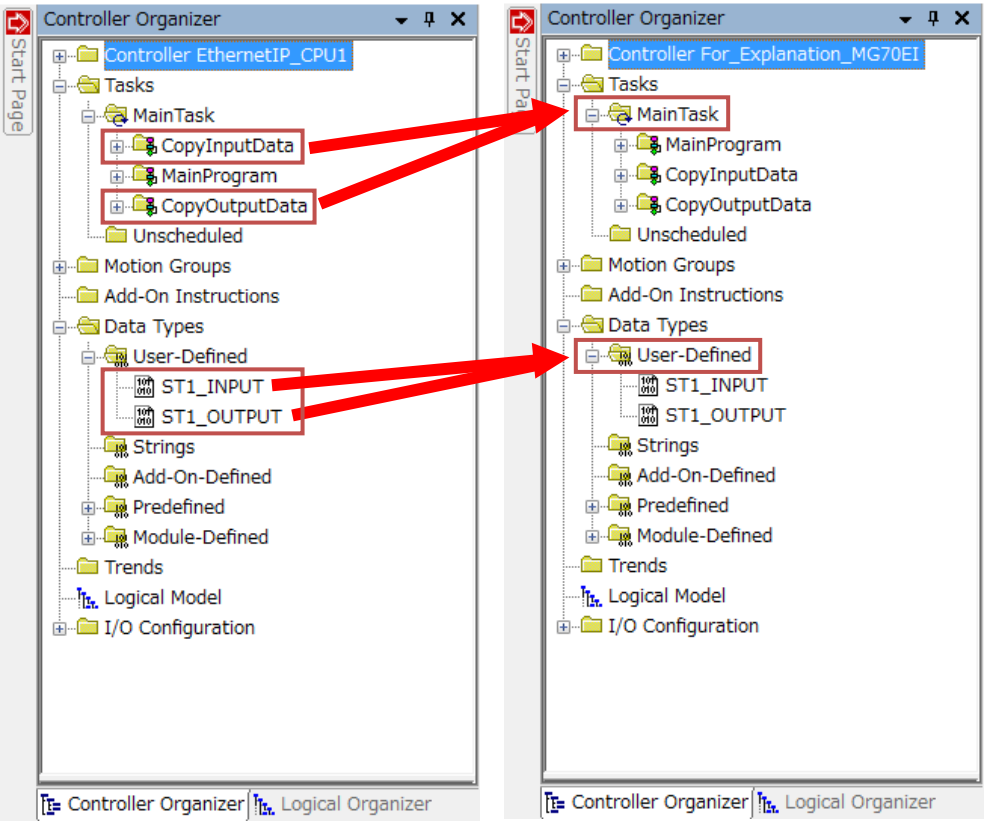

Fig. 5-4 Logix Designer -- Reflection to an existing project -- No.2

4. Open “Controller Tags” with “Edit Tags” of both projects, and move the “ST1_inp” and “ST1_out” tags to the existing project side.

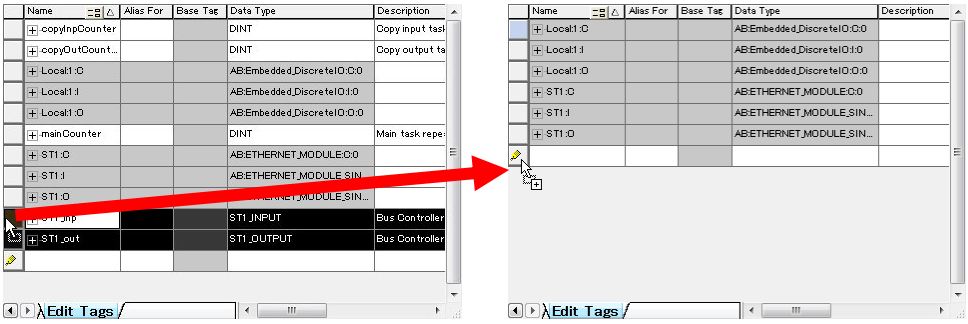

Fig. 5-5 Logix Designer -- Reflection to an existing project -- No.3

5. Right-click “MainTask” on the existing project side, and select “Properties”.

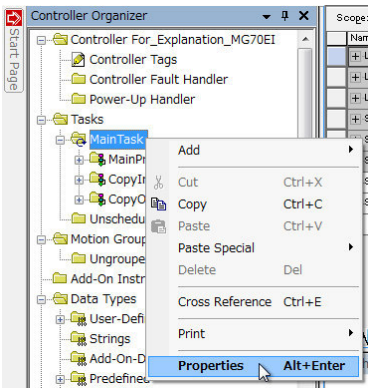

Fig. 5-6 Logix Designer -- Reflection to an existing project -- No.4

6. Select the “Program Schedule” tab in the Properties window, and arrange the “Scheduled” items in order of “CopyInputData”, “MainProgram”, “CopyOutputData”.
   * Arrange the items so that the program that will use the MG70-EI I/O data is located between “CopyInputData” and “CopyOutputData”.

   When finished, click “OK”.

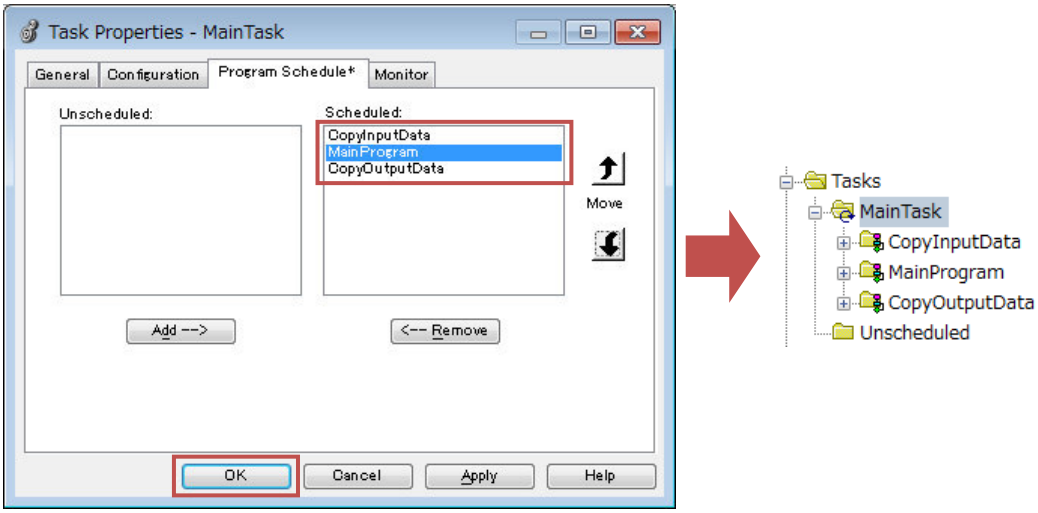

Fig. 5-7 Logix Designer -- Reflection to an existing project -- No.5

7. Open the “CopyInputData” program and delete the “ADD” command.

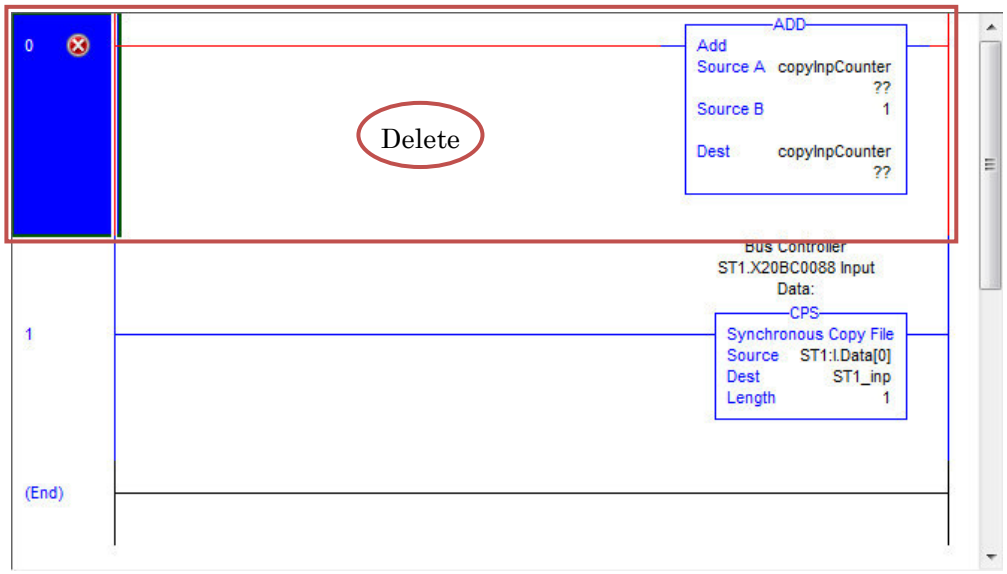

Fig. 5-8 Logix Designer -- Reflection to an existing project -- No.6

8. Open the “CopyOutputData” program, and delete the “ADD” command.

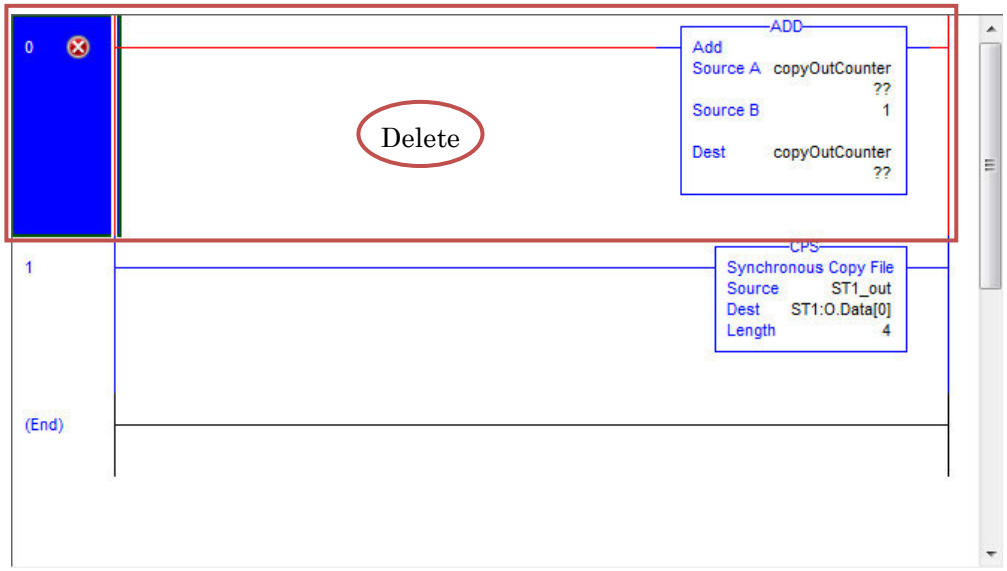

Fig. 5-9 Logix Designer -- Reflection to an existing project -- No.7

9. This completes reflection to an existing project.

5.3. IP address settings

1. Start up Logix Designer and open the existing project used in the reflection task in section 5.2 above.

2. Right-click the added “ETHERNET-MODULE ST1”, and select “Properties”.

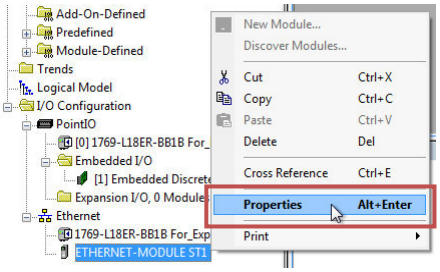

Fig. 5-10 Logix Designer -- IP address settings -- No.1

3. Select the “General” tab in the Properties window, set “IP Address” to the IP address value set in section 4.1 above, and click “OK”.

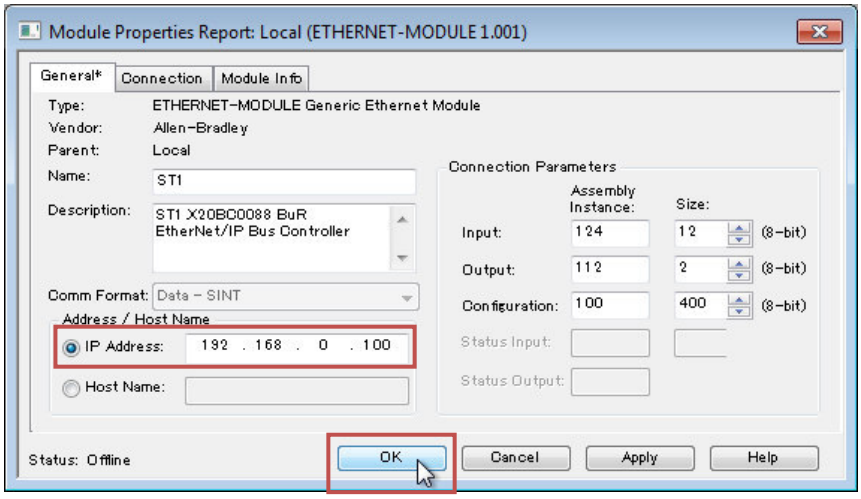

Fig. 5-11 Logix Designer -- IP address settings -- No.2

4. This completes the X20BC0088 IP address-setting task on Logix Designer.

6. (Reference) Creation of various files by the user

To use a number of MG71-CM not available on the Magnescale website with the MG70-EI, or to change the I/O data to be used, use the B&R software FieldbusDESIGNER.
The description in this section assumes that the FieldbusDESIGNER version is V3.0.80.42.

6.1. FieldbusDESIGNER introduction

6.1.1. Overview

FieldbusDESIGNER is free software created by B&R, and can be used to create the configuration files (EDS file, etc.) for some of B&R's industrial network bus controllers.

6.1.2. Installation procedure

1. Access the B&R website (http://www.br-automation.com/), and select:
   「Downloads」
   →「Product Groups : Software」
   →「Software : FieldbusDESIGNER」
   Download "Automation Studio FieldbusDESIGNER".

2. Extract the downloaded ZIP file and execute "Install.exe".
   * If the file cannot be executed, execute "\Setups\FieldbusDESIGNER V3.0.80.exe" located in the same layer.

3. Select the language to be used by the installer.

4. Start up the Installation Wizard.
   Follow the instructions on the screen thereafter.
   * Select "B&R I/O Configuration" as the installation type.

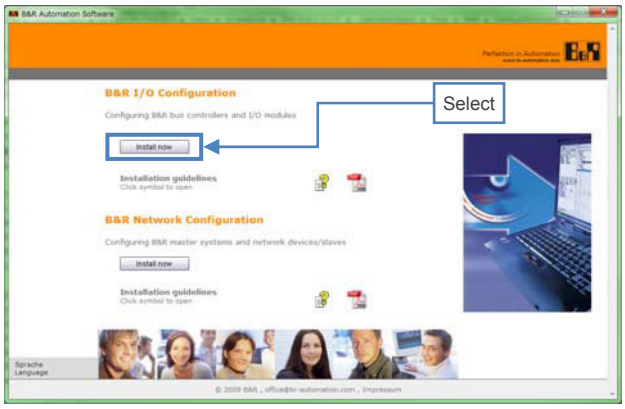

Fig 6-1 FieldbusDESIGNER -- Selecting the installation type

6.1.3. License registration

If the FieldbusDESIGNER license has not yet been registered, follow the procedure below and register the license.
※The software can be used for a 30-day trial period in the unregistered condition.
Once this trial period has passed, FieldbusDESIGNER cannot be used until license registration is performed.

■Getting a FieldbusDESIGNER serial number
An 11-digit serial number is needed to register the FieldbusDESIGNER license.
* A B&R website login account (contact B&R to get an account) and a computer with an Internet connection are needed to get the serial number.

1. Access the serial number get request page on the B&R website:
(http://service.br-automation.com/br_applications/fieldbusdesigner.jsp)

2. Username and password entry are requested.
Enter the username and password obtained from B&R, and click "Login".

3. When login is successful, a FieldbusDESIGNER serial number will be displayed.
Make a note of this serial number.

■Online license registration method
The license registration method using a computer with an Internet connection is described below.

1. Start up FieldbusDESIGNER, and select "Help" → "About Automation Studio" from the menu.

2. Click "Relicense…" in the displayed popup window.

3. Enter the 11-digit serial number obtained for FieldbusDESIGNER in the "B&R serial number" field of the displayed popup window, and click "License automatically (online)".

4. Authentication is performed online, and if there are no problems, the information for the license used will be displayed in a popup window.
Performing the above procedure completes the license registration.

■Offline license registration method
The license registration method using a computer without an Internet connection is described below.

1. Start up FieldbusDESIGNER, and select "Help" → "About Automation Studio" from the menu.

2. Click "Relicense…" in the displayed popup window.

3. Enter the 11-digit serial number obtained for FieldbusDESIGNER in the "B&R serial number" field of the displayed popup window, and click "License automatically (offline)".

4. Make a note of the entire character string displayed in the "System code (Sys-ID)" field of the displayed popup window.

5. Access the license registration page on the B&R website.
(http://service.br-automation.com/softwareRegistration/bin/index.jsp)

6. Enter the character string displayed in “System code (Sys-ID)” in the “System Code” field, and click “Register”.

7. An offline activation code will be displayed. Make a note of this code.

8. Return to the previous popup window, enter the activation code in the “License code (Sec-ID)” field, and click “OK”.

9. If there are no problems, the information for the license used will be displayed in a popup window.
Performing the above procedure completes the license registration.

6.2. Downloading the necessary files

1. Access the B&R website (http://www.br-automation.com/), and select:
“Downloads”
→ “Product Groups : Control and I/O systems”
→ “Control and I/O systems : X20 System”
→ “X20 System : Counter modules”
→ “Counter modules : X20DC11A6”
Download “V3.0 HW Upgrade (X20DC11A6) ”.

2. Save the downloaded file in the appropriate location, and extract the file using file extraction software.

6.3. Operations to be performed using FieldbusDESIGNER

6.3.1. Hardware upgrade

1. Start up FieldbusDESIGNER.

2. Select “Tools” → “Upgrade…” from the menu.

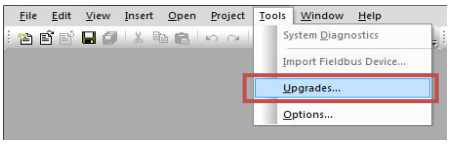

Fig 6-2 FieldbusDESIGNER – Hardware upgrade -- No.1

3. The upgradable hardware will be automatically searched online in the displayed popup window. However, ignore this search and click “Browse local storage…”.

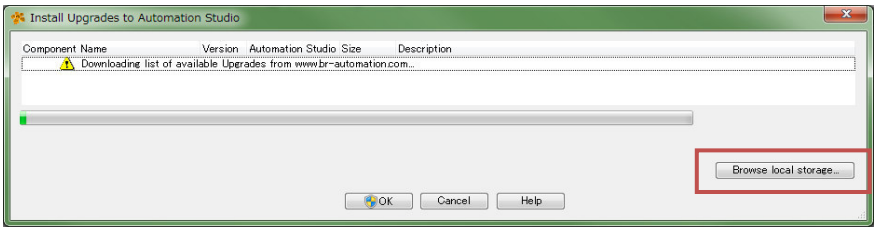

Fig 6-3 FieldbusDESIGNER -- Hardware upgrade -- No.2

4. A hardware upgrade file selection window will be displayed.
   Select the hardware upgrade file (AS3.0_HW_X20DC11A6.exe) saved in section 6.2 above.

5. X20DC11A6 will be displayed in the hardware upgrade selection window.
   Make sure that the checkbox contains a check mark, and click “OK”.

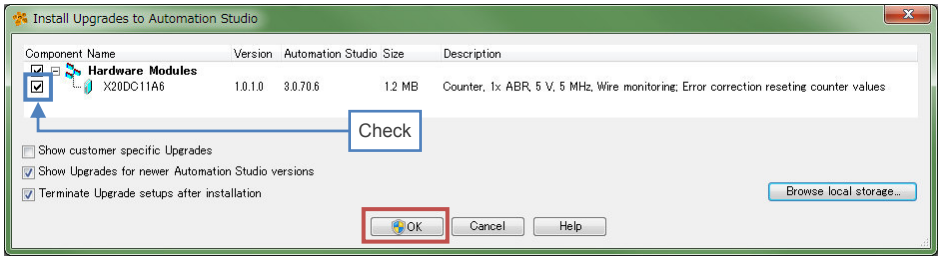

Fig 6-4 FieldbusDESIGNER -- Hardware upgrade -- No.3

6. The X20DC11A6 hardware upgrade process will start.
   A command prompt may pop up and the message “Any errors occurred” may be displayed partway through the process. However, ignore these and press the “Enter” key.

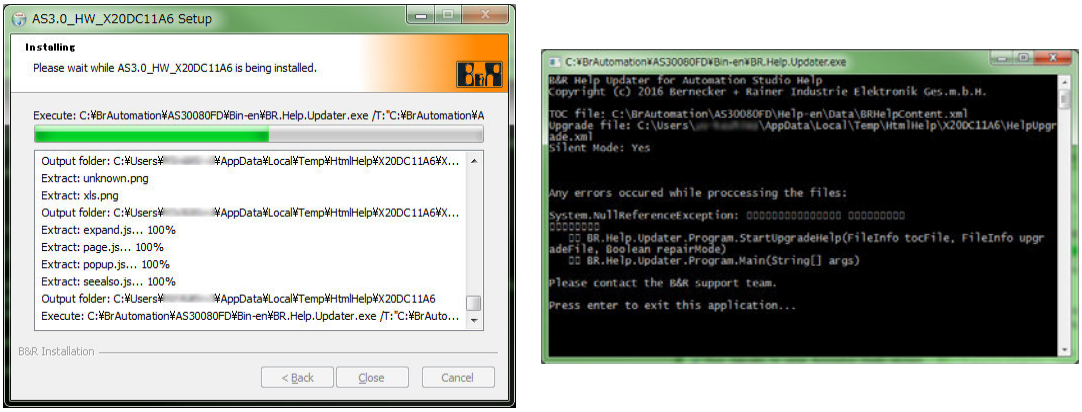

Fig 6-5 FieldbusDESIGNER -- Hardware upgrade -- No.4

7. This completes the hardware upgrade required by FieldbusDESIGNER.

6.3.2. New project creation

1. Start up FieldbusDESIGNER.

2. Select “File” → “New Project…” from the menu.

3. Enter appropriate values in “Name of the project” and “Path of the project” in the displayed popup window, and click “Next”.

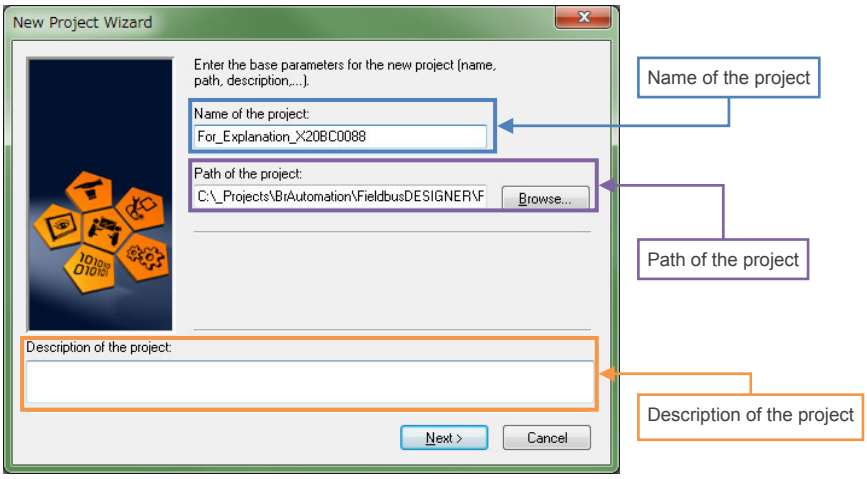

Fig 6-6 FieldbusDESIGNER -- New project creation -- No.1

4. Enter appropriate values in “Name of the configuration” and “Name of the PLC”, and click “Next”.
This manual describes the process when simply clicking “Next”.

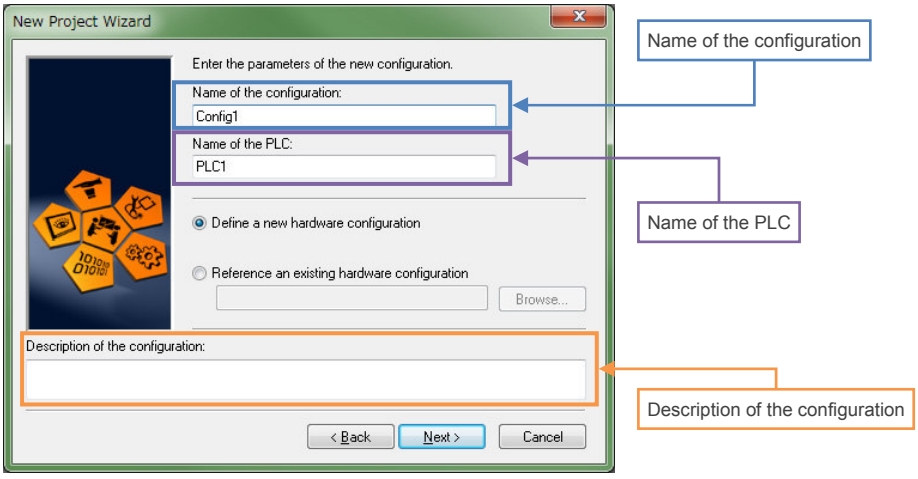

Fig 6-7 FieldbusDESIGNER -- New project creation -- No.2

5. Select the bus module used to generate the configuration file.
   In this manual it is necessary to generate only X20BC0088 (EtherNet/IP), so this manual describes the process when selecting “EtherNet/IP CPU” and clicking “Next”.

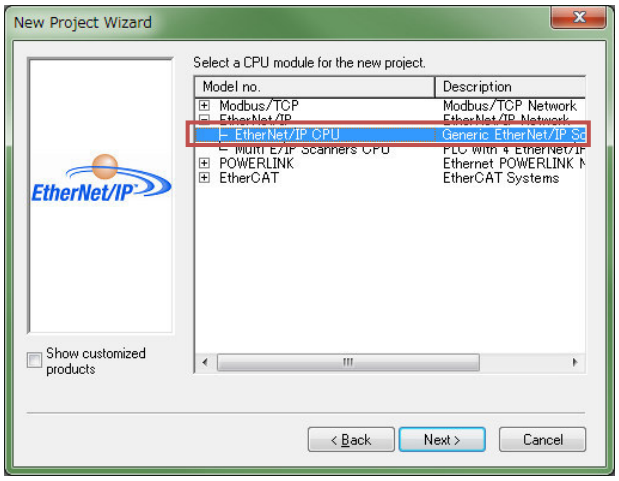

Fig 6-8 FieldbusDESIGNER -- New project creation -- No.3

6. A confirmation window will be displayed for the project to be created.
   Click “Finish”.

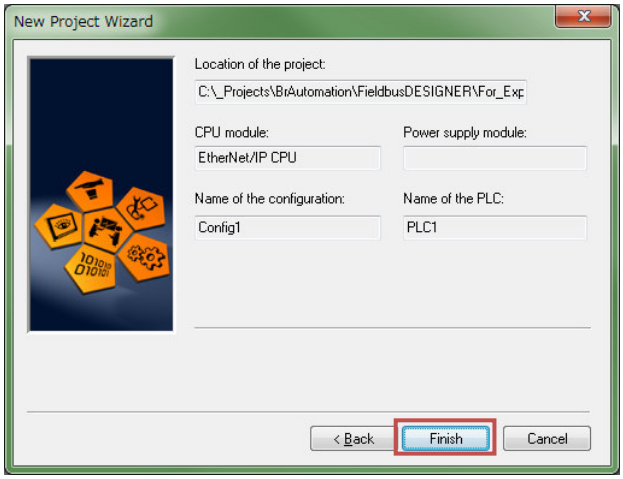

Fig 6-9 FieldbusDESIGNER -- New project creation -- No.4

7. New projects can be created by performing the above procedure.

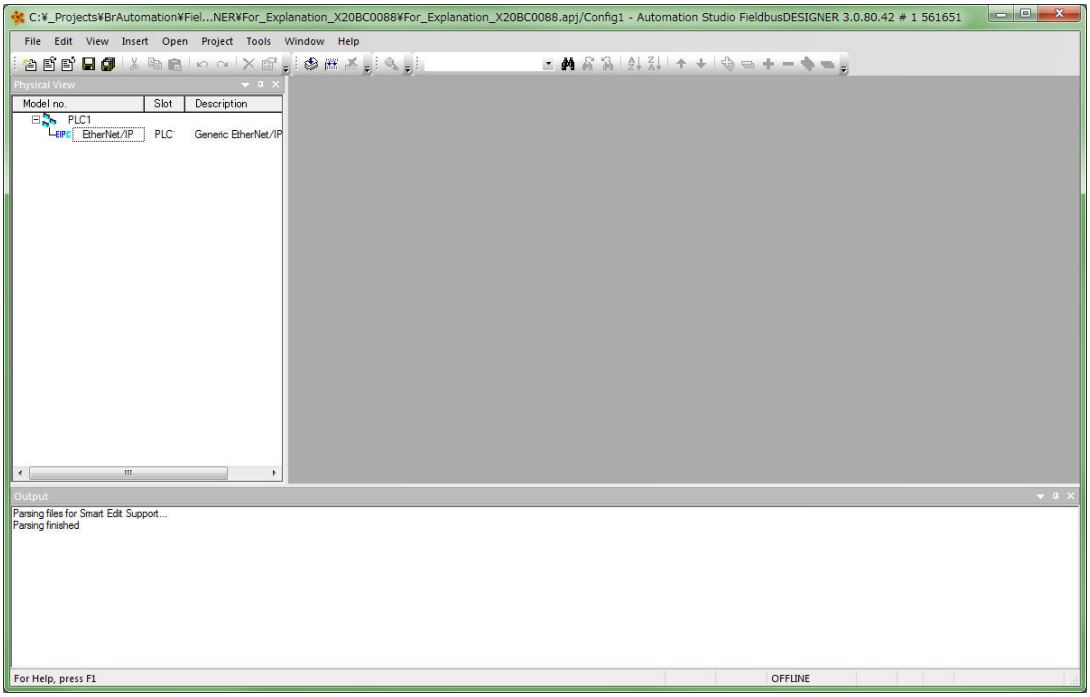

Fig 6-10 FieldbusDESIGNER -- After creating a new project

6.3.3. Build project

1. Right-click “EtherNet/IP” in “Physical View” of the left pane, and select “Open EtherNet/IP” from the displayed context menu.
   The new tab “PLC1.CPU [EtherNet/IP]” will open in the center pane.

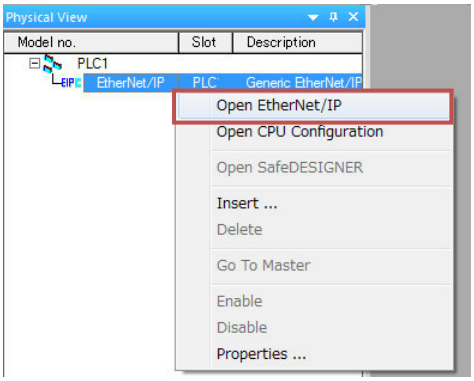

Fig 6-11 FieldbusDESIGNER -- Build project -- No.1

2. Right-click the “IF1 (EtherNet/IP)” in the “PLC1.CPU [EtherNet/IP]” tab, and select “Insert...” from the displayed context menu.

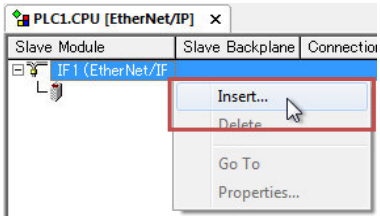

Fig 6-12 FieldbusDESIGNER -- Build project -- No.2

3. Select X20BC0088 from the list in the displayed popup window, and click “Next”.
   A confirmation window will be displayed. Click “Next”.

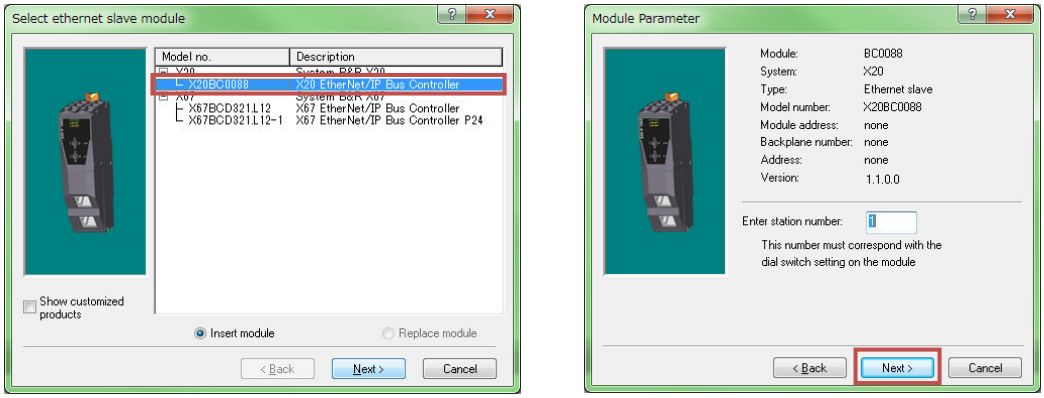

Fig 6-13 FieldbusDESIGNER -- Build project -- No.3

4. X20BC0088 and X20PS9400 will be added in the “Physical View” pane. X20BC0088 will also be added in the formerly blank location in the “PLC1.CPU [EtherNet/IP]” tab.

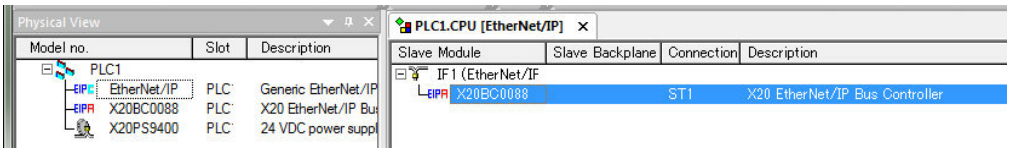

Fig 6-14 FieldbusDESIGNER -- Build project -- No.4

5. Right-click X20BC0088 in the “Physical View” pane, and select “Open X2X Link” in the displayed context menu.
The new tab “PLC1.CPU.IF1.ST1 [X2X Link]” will open in the center pane.

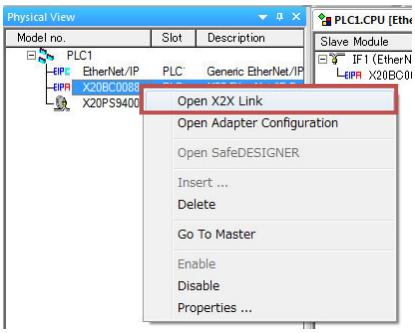

Fig 6-15 FieldbusDESIGNER -- Build project -- No.5

6. Right-click the blank field below X20PS9400 in the “PLC1.CPU.IF1.ST1 [X2X Link]” tab, and select “Insert…” from the displayed context menu.

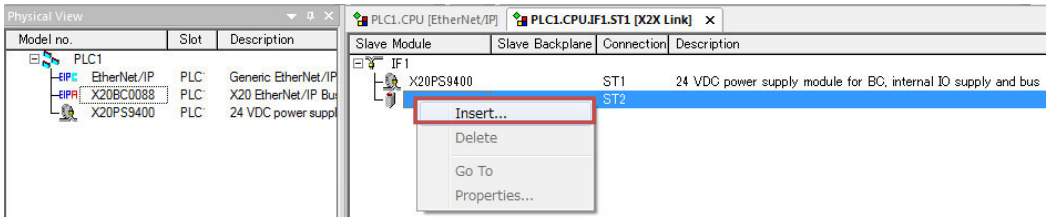

Fig 6-16 FieldbusDESIGNER -- Build project -- No.6

7. Select X20DC11A6 (located below “Mixed modules”) from the list in the displayed popup window, and click “Next”.
   A confirmation window will be displayed. Click “Next”.

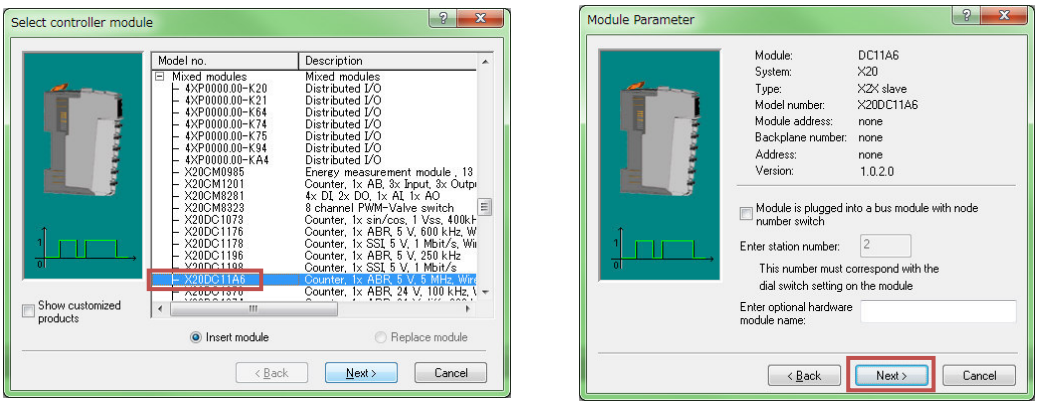

Fig 6-17 FieldbusDESIGNER -- Build project -- No.7

8. X20PS9400 will be added in the “Physical View” pane.
   X20DC11A6 will also be added in the formerly blank location in the “PLC1.CPU [EtherNet/IP]” tab.

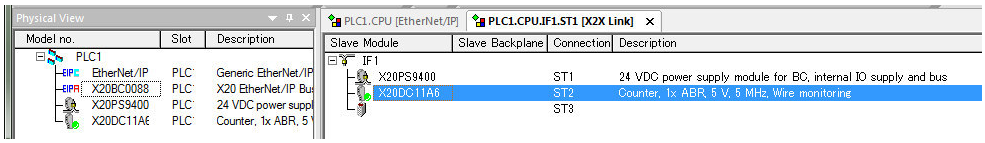

Fig 6-18 FieldbusDESIGNER -- Build project -- No.8

9. Repeat steps 6 through 8 above the number of times equal to the number of MG71-CM (X20DC11A6) to be used.
   This manual describes the process when adding only one X20DC11A6 below X20BC0088.

10. To locate multiple MG70-EI (X20BC0088) on the same EtherNet/IP network, repeat steps 1 through 9 above.
    This manual describes the process when using only one MG70-EI (X20BC0088).

6.3.4. Build

1. Select “Project” → “Build Configuration” from the menu.

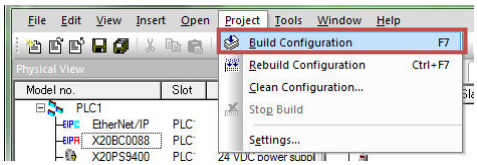

Fig 6-19 FieldbusDESIGNER -- Build -- No.1

2. After build is complete, check that an error is not output in the “Output” pane.

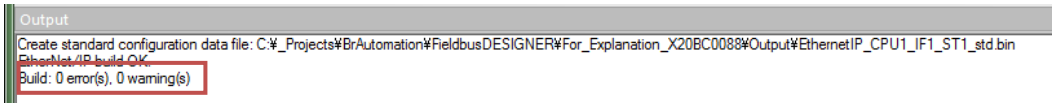

Fig 6-20 FieldbusDESIGNER -- Build -- No.2

3. The files generated by build are located in the “Output” folder below the folder where the project file is located.

●EthernetIP_CPU1.L5K
This file is a L5K file for X20BC0088.
This file is needed when using an Allen-Bradley PLC.

●EthernetIP_CPU1_IF1_ST1.eds
This file is an EDS file (Electronic Data Sheet) for X20BC0088.
This file is needed when using a PLC other than an Allen-Bradley PLC.

●EthernetIP_CPU1.txt
This text file describes information related to the X20BC0088 configuration data.
This file is needed to check the I/O data address map of “EthernetIP_CPU1_IF1_ST1.eds”.

●EthernetIP_CPU1_IF1_ST1_std.bin
This file is a configuration file (binary file) for X20BC0088.
It can be downloaded directly by using the X20BC0088 Web server function.

日本からの輸出時における注意

本製品(および技術)は輸出令別表第1の16の項(外為令別表16の項)に該当します。キャッチオール規制による経済産業省の許可要否につきましては、輸出者様にてご確認ください。

For foreign customers

Note: This product (or technology) may be restricted by the government in your country. Please make sure that end-use, end user and country of destination of this product do not violate your local government regulation.

株式会社マグネスケール

〒259-1146　神奈川県伊勢原市鈴川45

Magnescale Co., Ltd.

45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan

MG70-EI
2-A02-328-0A

2016.11

Magnescale®

EtherNet/IP インターフェイスユニット メインモジュール
EtherNet/IP Interface unit Main module

MG70-EI

補足説明書 / Supplement

お買い上げいただき、ありがとうございます。

安全にご使用いただくために、本紙と各取扱説明書を必ずお読みください。

取扱説明書は当社ホームページからダウンロードいただくか、最寄りの営業所にお問い合わせください。

ご使用に際しては、本紙と取扱説明書どおりにお使いください。

お読みになった後は、後日お役に立つこともございますので、必ず保管してください。

Thank you for purchasing this product.

To ensure safe operation, please be sure to read this document and each instruction manual carefully.

To obtain the instruction manuals, download them from the website of Magnescale Co., Ltd. or contact your nearest sales representative.

Be sure to operate the product according to the descriptions in this document and the instruction manuals.

Be sure to keep this document and all instruction manuals in a safe and readily available location for future reference.

概要

MG70-EI は、Bernecker + Rainer Industrie Elektronik（以下，B&R と記載）の EtherNet/IP インターフェイスユニット メインモジュールを（株）マグネスケールが販売するものです。

MG70-EI の基本的な仕様に関しては、以下に示す B&R 製品の資料をご覧ください。

Magnescale モデル番号	B&R モデル番号	説明	B&R Web リンク
MG70-EI	X20BC0088	EtherNet/IP バス・コントローラ（アダプタ）	http://www.br-automation.com/en/products/io-systems/x20-system/bus-controllers/x20bc0088/
	X20BB80	バス・コントローラ用ベース・モジュール	http://www.br-automation.com/en/products/io-systems/x20-system/system-modules-for-bus-controllers/x20bb80/
	X20PS9400	電源モジュール	http://www.br-automation.com/en/products/io-systems/x20-system/system-modules-for-bus-controllers/x20ps9400/
	X20TB12	端子台	http://www.br-automation.com/en/products/io-systems/x20-system/terminal-blocks/x20tb12/

MG70-EI を使用するにあたり、L5K ファイルもしくは EDS（Electronic Data Sheet）ファイルが必要となります。これらは Magnescale のホームページから製品情報ページにアクセスすることでダウンロードできます。

Magnescale ホームページ：
http://www.magnescale.com/mgs/index.html

L5K ファイルは、Allen-Bradley の PLC を使用する際に使用します。
Allen-Bradley 以外の PLC を使用する場合は EDS ファイルを使用します。EDS ファイルを使用される場合の取扱い方については、別途お問い合わせください。

取扱説明書

弊社ホームページ
http://www.magnescale.com/mgs/product
Digital Gauge カテゴリ内

安全上の注意

●注意表示の意味

⚠ 注意	正しい取扱いをしなければ、この危険のために、時に軽症・中程度の傷害を負ったり、あるいは物的損害を受ける恐れがあります。

●注意表示

⚠ 注意

通電中は、端子部に触れたり、本製品を分解して内部に触れたりしないでください。感電の恐れがあります。

本製品を分解して修理や改造はしないでください。感電の恐れがあります。

- 規定された電源電圧以外での電圧で使用しないでください。火災や感電の原因となる恐れがあります。
- 濡れた手での取付作業はしないでください。感電の原因となります。
- 本製品を分解、改造しないでください。火傷やケガの恐れがあります。分解・改造された製品は保証できません。
- ケーブルを傷つけたり、加工したり、無理に曲げたり、引張ったりしないでください。また、重いものをのせたり、熱したりしないでください。ケーブルが破損し、火災や感電の原因となる恐れがあります。

- 本製品の取付作業を行なう際や、取付けた装置を動作させる場合には、充分な安全を確保してください。
- 信号ケーブルの抜き差しの際は、ケーブルでなく必ずプラグの部分を持って行なってください。
- 本製品は防爆構造になっていませんので、可燃性ガスの雰囲気中では使用しないでください。火災の原因となることがあります。
- 設置中や操作中に異常（煙・音・匂いなど）が発生した場合、すぐに接続ケーブルを外して、サービスにご連絡ください。そのまま使用すると火災や感電、故障の原因となります。

使用上の注意

- 取扱説明書に示すとおり、正しく接続してください。正しく接続しないと、故障する恐れがあります。
- 次のような環境には設置しないでください。
  - 日光が直接当たる場所
  - 周囲温度や相対湿度が仕様値の範囲を超える場所
  - 温度の変化が急激で結露するような場所
  - 腐食性ガス、可燃性ガスのある場所
  - ちり、ほこり、塩分、鉄粉が多い場所
  - 水、酸、油、薬品などの飛沫がかかる場所
  - 本体に直接振動や衝撃が伝わる場所
- 次のような場所で使用する際は、遮蔽対策を充分に行なってください。
  - 静電気などによるノイズが発生する場所
  - 強い電界や磁界が生じる場所
  - 放射能を被曝する恐れのある場所
  - 電源線や動力線が近くを通る場所
- 製品を落下させたり異常な振動や衝撃を加えたりしないでください。故障や誤動作の原因となります。
- 本製品を輸送するときは、専用の梱包箱を使用してください。また、輸送中に過度な振動や衝撃が加わらないように注意してください。
- 取扱説明書に示すとおり、正しく配線してください。

Overview

The MG70-EI is a EtherNet/IP Interface unit Main module created by Bernecker + Rainer Industrie Elektronik (hereafter, B&R) and sold by Magnescale Co., Ltd.

For the MG70-EI specifications, refer to the B&R product documentation listed below.

Magnescale model number	B&R model number	Description	B&R Web link
MG70-EI	X20BC0088	EtherNet/IP bus controller (Adapter)	http://www.br-automation.com/en/products/io-systems/x20-system/bus-controllers/x20bc0088/
	X20BB80	Base module for bus controller	http://www.br-automation.com/en/products/io-systems/x20-system/system-modules-for-bus-controllers/x20bb80/
	X20PS9400	Power supply module	http://www.br-automation.com/en/products/io-systems/x20-system/system-modules-for-bus-controllers/x20ps9400/
	X20TB12	Terminal block	http://www.br-automation.com/en/products/io-systems/x20-system/terminal-blocks/x20tb12/

An L5K file or EDS (Electronic Data Sheet) file is needed to use the MG70-EI. These files can be downloaded by accessing the product information page of the Magnescale website.

Magnescale website:
http://www.magnescale.com/mgs/language/english/

The L5K file is used when using an Allen-Bradley PLC.
When using a PLC other than an Allen-Bradley PLC, use the EDS file. Contact us for the handling method when using the EDS file.

Instruction Manual

Magnescale website
http://www.magnescale.com/mgs/language/english/product/
Under Digital Gauge

Safety Precautions

● Definition of Precautionary Information

⚠ Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

● Cautions

⚠ Caution

Do not attempt to take any unit apart while the power is being supplied. Doing so may result in electric shock.

Do not attempt to disassemble, repair, or modify any units. Any attempt to do so may result in electric shock.

- Do not use the product at voltages other than the specified power voltage. This could result in a fire or electric shock.
- Do not perform installation work with wet hands. This could result in an electric shock.
- Do not disassemble or modify the product. This could result in a burn or other injury. Disassembling or modifying the product will void the warranty.
- Do not damage, modify, excessively bend, pull on, place heavy objects on or heat the cable. This could damage the cable and result in a fire or electric shock.

PRECAUTIONS FOR SAFE USE

- Take all possible safety measures when mounting the product and operating a mounted device.
- When connecting and disconnecting a signal cable, be sure to grasp by the plug section, not the cable.
- The product does not have an explosion-proof structure. Therefore, do not use the unit in an atmosphere containing flammable gas. This could result in a fire.
- If anything unusual (smoke, sound, smell, etc.) occurs during installation or operation, immediately unplug connection cables and contact the Service Center. Continued usage in this situation can result in a fire, electric shock, or breakdown.

PRECAUTIONS FOR CORRECT USE

- Connect cables to the unit property as shown in the instruction manual. Not doing so may result in a failure of the unit.
- Do not install the unit in the following places:
  - Locations subject to direct sunlight
  - Locations subject to temperatures or humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, acid, oil, or chemicals
  - Locations subject to shock or vibration
- Take appropriate and sufficient countermeasures when using the unit in the following locations:
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power supplies
- Do not drop the product to the ground or expose to excessive vibration or mechanical shocks. The product may be damaged and may not function properly.
- Use a dedicated packing box to transport the unit. Avoid excessive shock or vibration during transportation.
- Wire the unit properly as shown in the instruction manual.

株式会社マグネスケール
〒259-1146　神奈川県伊勢原市鈴川 45

Magnescale Co., Ltd.
45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan

MG70-EI　2016.11
2-A02-329-0A　Printed in Japan

このマニュアルは再生紙を使用しています。

Magnescale®

カウンタモジュール
Counter module

MG71-CM

補足説明書 / Supplement

お買い上げいただき、ありがとうございます。

安全にご使用いただくために、本紙と各取扱説明書を必ずお読みください。

取扱説明書は当社ホームページからダウンロードいただくか、最寄りの営業所にお問い合わせください。

ご使用に際しては、本紙と取扱説明書どおりにお使いください。

お読みになった後は、後日お役に立つこともございますので、必ず保管してください。

Thank you for purchasing this product.

To ensure safe operation, please be sure to read this document and each instruction manual carefully.

To obtain the instruction manuals, download them from the website of Magnescale Co., Ltd. or contact your nearest sales representative.

Be sure to operate the product according to the descriptions in this document and the instruction manuals.

Be sure to keep this document and all instruction manuals in a safe and readily available location for future reference.

概要

MG71-CM は、Bernecker + Rainer Industrie Elektronik（以下､B&R と記載）のカウンタモジュールを（株）マグネスケールが販売するものです。

MG71-CM の基本的な仕様に関しては、以下に示す B&R 製品の資料をご覧ください。

Magnescale モデル番号	B&R モデル番号	説明	B&R Web リンク
MG71-CM	X20DC11A6	デジタルカウンタ・モジュール	http://www.br-automation.com/en/products/io-systems/x20-system/counter-functions/x20dc11a6/
	X20BM11	デジタルカウンタ・モジュール用ベース・モジュール	http://www.br-automation.com/en/products/io-systems/x20-system/bus-modules/x20bm11/
	X20TB12	端子台	http://www.br-automation.com/en/products/io-systems/x20-system/terminal-blocks/x20tb12/

取扱説明書

弊社ホームページ
http://www.magnescale.com/mgs/product
Digital Gauge カテゴリ内
MG70-EI または MG70-PN

安全上の注意

●注意表示の意味

⚠ 注意	正しい取扱いをしなければ、この危険のために、時に軽症・中程度の傷害を負ったり、あるいは物的損害を受ける恐れがあります。

●注意表示

⚠ 注意

通電中は、端子部に触れたり、本製品を分解して内部に触れたりしないでください。感電の恐れがあります。

本製品を分解して修理や改造はしないでください。感電の恐れがあります。

- 規定された電源電圧以外での電圧で使用しないでください。火災や感電の原因となる恐れがあります。
- 濡れた手での取付作業はしないでください。感電の原因となります。
- 本製品を分解、改造しないでください。火傷やケガの恐れがあります。分解・改造された製品は保証できません。
- ケーブルを傷つけたり、加工したり、無理に曲げたり、引張ったりしないでください。また、重いものをのせたり、熱したりしないでください。ケーブルが破損し、火災や感電の原因となる恐れがあります。

- 本製品の取付作業を行なう際や、取付けた装置を動作させる場合には、充分な安全を確保してください。
- 信号ケーブルの抜き差しの際は、ケーブルでなく必ずプラグの部分を持って行なってください。
- 本製品は防爆構造になっていませんので、可燃性ガスの雰囲気中では使用しないでください。火災の原因となることがあります。
- 設置中や操作中に異常（煙・音・匂いなど）が発生した場合、すぐに接続ケーブルを外して、サービスにご連絡ください。そのまま使用すると火災や感電、故障の原因となります。

使用上の注意

- 取扱説明書に示すとおり、正しく接続してください。正しく接続しないと、故障する恐れがあります。
- 次のような環境には設置しないでください。
  - ・日光が直接当たる場所
  - ・周囲温度や相対湿度が仕様値の範囲を超える場所
  - ・温度の変化が急激で結露するような場所
  - ・腐食性ガス、可燃性ガスのある場所
  - ・ちり、ほこり、塩分、鉄粉が多い場所
  - ・水、酸、油、薬品などの飛沫がかかる場所
  - ・本体に直接振動や衝撃が伝わる場所
- 次のような場所で使用する際は、遮蔽対策を充分に行なってください。
  - ・静電気などによるノイズが発生する場所
  - ・強い電界や磁界が生じる場所
  - ・放射能を被曝する恐れのある場所
  - ・電源線や動力線が近くを通る場所
- 製品を落下させたり異常な振動や衝撃を加えたりしないでください。故障や誤動作の原因となります。
- 本製品を輸送するときは、専用の梱包箱を使用してください。また、輸送中に過度な振動や衝撃が加わらないように注意してください。
- 取扱説明書に示すとおり、正しく配線してください。

Overview

The MG71-CM is a Counter module created by Bernecker + Rainer Industrie Elektronik (hereafter, B&R) and sold by Magnescale Co., Ltd.

For the MG71-CM specifications, refer to the B&R product documentation listed below.

Magnescale model number	B&R model number	Description	B&R Web link
MG71-CM	X20DC11A6	Digital counter module	http://www.br-automation.com/en/products/io-systems/x20-system/counter-functions/x20dc11a6/
	X20BM11	Base module for digital counter module	http://www.br-automation.com/en/products/io-systems/x20-system/bus-modules/x20bm11/
	X20TB12	Terminal block	http://www.br-automation.com/en/products/io-systems/x20-system/terminal-blocks/x20tb12/

Instruction Manual

Magnescale website
http://www.magnescale.com/mgs/language/english/product/
Under Digital Gauge
MG70-EI or MG70-PN

Safety Precautions

● Definition of Precautionary Information

⚠ Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

● Cautions

⚠ Caution

Do not attempt to take any unit apart while the power is being supplied. Doing so may result in electric shock.

Do not attempt to disassemble, repair, or modify any units. Any attempt to do so may result in electric shock.

- Do not use the product at voltages other than the specified power voltage. This could result in a fire or electric shock.
- Do not perform installation work with wet hands. This could result in an electric shock.
- Do not disassemble or modify the product. This could result in a burn or other injury. Disassembling or modifying the product will void the warranty.
- Do not damage, modify, excessively bend, pull on, place heavy objects on or heat the cable. This could damage the cable and result in a fire or electric shock.

PRECAUTIONS FOR SAFE USE

- Take all possible safety measures when mounting the product and operating a mounted device.
- When connecting and disconnecting a signal cable, be sure to grasp by the plug section, not the cable.
- The product does not have an explosion-proof structure. Therefore, do not use the unit in an atmosphere containing flammable gas. This could result in a fire.
- If anything unusual (smoke, sound, smell, etc.) occurs during installation or operation, immediately unplug connection cables and contact the Service Center. Continued usage in this situation can result in a fire, electric shock, or breakdown.

PRECAUTIONS FOR CORRECT USE

- Connect cables to the unit property as shown in the instruction manual. Not doing so may result in a failure of the unit.
- Do not install the unit in the following places:
  - Locations subject to direct sunlight
  - Locations subject to temperatures or humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, acid, oil, or chemicals
  - Locations subject to shock or vibration
- Take appropriate and sufficient countermeasures when using the unit in the following locations:
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power supplies
- Do not drop the product to the ground or expose to excessive vibration or mechanical shocks. The product may be damaged and may not function properly.
- Use a dedicated packing box to transport the unit. Avoid excessive shock or vibration during transportation.
- Wire the unit properly as shown in the instruction manual.

株式会社マグネスケール
〒259-1146　神奈川県伊勢原市鈴川 45

Magnescale Co., Ltd.
45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan

MG71-CM　2016.11
2-A02-325-0A　Printed in Japan

このマニュアルは再生紙を使用しています。