

ARIO-C-CL

CC-Link

User Manual MTO-ARIOCCLU1-V2.0-2200US

Thank you for purchasing an Autonics product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

Autonics

Contents

Preface	5
Manual Guide	7
Common Symbols in the Manual	9
Safety Considerations	11
1. Reference Manuals	13
2. Overview of the ARIO-C-CL	15
2.1. CC-Link Protocol	15
2.2. Unit Descriptions	16
2.3. CC-Link Communication Connector	18
2.4. Set the Transmission Rate	19
2.5. Assign the Station Number	20
2.5.1. Assign the Station Number in the DAQMaster	21
2.6. Connections of the Power Terminal	22
3. Indicators	23
3.1. LEDs for the Coupler Status	24
3.2. LEDs for the Field Network Status	26
4. Process Images	29
4.1. Memory Map	29
4.2. Data Processing in the Module	30
4.2.1. Check the Data of the Modules	31
4.3. Example of the Process Image	32
4.3.1. Input Process Image	33
4.3.2. Output Process Image	33
4.3.3. Mapping of the Coupler Diagnostic Data	34
5. CC-Link Address Area	37
5.1. Data Types	37
5.2. CC-Link Memory Map Layout	37
5.3. Memory Map of the ARIO Unit	38
6. GX-Works2 Guide	39
6.1. Before You Begin	39
6.2. Create a Mitsubishi PLC Project	41

6.3. Configure the CC-Link Parameters	44
6.3.1. General Settings.....	44
6.3.2. Settings with CSP+.....	50
6.4. Download the Program	57
6.5. Monitor the I/O Data.....	59
7. DAQMaster	63
7.1. Monitor the ARIO Unit	63
7.2. Update the Firmware Version.....	67
8. Dimensions	69
9. Specifications	71
9.1. Electrical/Mechanical Specifications	71
9.2. Environmental Conditions	72
10. Communication Specifications	73
10.1. CC-Link Communication	73
10.2. ABUS	73

Preface

Thank you for purchasing Autonics products.

Be sure to read and follow the **Safety Precautions** thoroughly before use.

This manual contains information about the product and how to use it properly, so keep it in a place where users can easily find it.

Manual Guide

- Use the product after fully reading the contents of the manual.
- The manual explains the product functions in detail and does not guarantee the contents other than the manual.
- Any or all of the manual may not be edited or copied without permission.
- The manual is not provided with the product.
- Download and use from our website (www.autonics.com).
- The contents of the manual are subject to change without prior notice according to the improvement of the product's performance, and upgrade notices are provided through our website.
- We put a lot of effort to make the contents of the manual a little easier and more accurate. Nevertheless, if you have any corrections or questions, please feel free to comment through our website.

Common Symbols in the Manual



Failure to follow instructions may result in serious injury or death.



Failure to follow instructions may result in injury or product damage.



Supplementary explanation of the function



Example of that function



Important information about the feature

Safety Considerations

Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.

Warning

1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g., nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.) Failure to follow this instruction may result in personal injury, fire or economic loss.
 2. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in explosion or fire.
 3. Do not disassemble or modify the unit. Failure to follow this instruction may result in fire.
 4. Do not connect, repair, or inspect the unit while connected to a power source. Failure to follow this instruction may result in fire.
 5. Check 'Connections' before wiring. Failure to follow this instruction may result in fire.
-

Caution

1. Use the unit within the rated specifications. Failure to follow this instruction may result in fire or shortening the life cycle of the product.
 2. Use dry cloth to clean the unit, and do not use water or organic solvent. Failure to follow this instruction may result in fire or electric shock.
 3. When connecting the power input and output, use AWG 22-16 cable and check the connecting method of crimp terminal. Failure to follow this instruction may result in fire or malfunction due to contact failure.
 4. Keep metal chip, dust, and wire residue from flowing into the unit. Failure to follow this instruction may result in fire or product damage.
 5. Do not connect or disconnect connector (terminal) wire or power, when the product is operating. Failure to follow this instruction may result in fire or malfunction of the product.
-

Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
2. BUS power and I/O power should be insulated by the individually insulated power device.
3. Power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
4. Use the rated standard cables and connectors. Do not apply excessive power when connecting or disconnecting the connectors of the product.
5. Keep away from high voltage lines or power lines to prevent inductive noise.
In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. For stable operation, use shield wire and ferrite core, when wiring communication wire, power wire, or signal wire.
6. Do not use near the equipment which generates strong magnetic force or high frequency noise.
7. Do not touch the module communication connector part of the base.
8. Do not connect, or remove the base while connected to a power source.
9. For removing the terminal, body or base, do not operate units for a long time without it.
10. This unit may be used in the following environments.
 - ① Indoors (in the environment condition rated in 'Specifications')
 - ② Altitude max. 2,000 m
 - ③ Pollution degree 2
 - ④ Installation category II

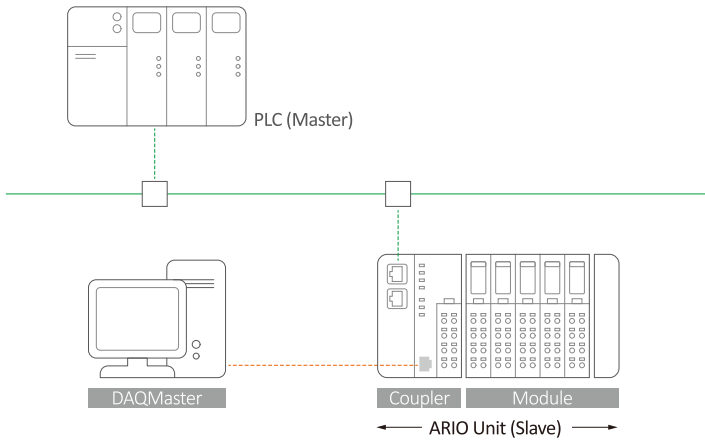
The specifications and dimensions of this manual are subject to change without any notice for product improvement. Be sure to read and follow the considerations written in the instruction manual, other manuals, and technical information on our Autonics website.

1. Reference Manuals



Be sure to read the reference manuals below to use the product correctly and follow the precautions written in these manuals.

You can download the reference manuals on our Autonics website.



Installation manual

It contains information for you to setup and install the ARIO Unit.

1. Key features of ARIO Series
2. Environmental conditions and handling method for installation
3. Installation precautions
4. Instructions about maintenance, etc.

Coupler manual

It contains information for you to configure and use the coupler in the field network.

1. Communication protocol overview
2. Hardware information: specifications, indicators, connection diagram, and dimensions, etc.
3. Software information: process images, and mapping information, etc.

Module manual

It contains information on the modules provided by Autonics.

1. Hardware information: specifications, indicators, connection diagram, and dimensions, etc.

DAQMaster user manual

It contains information and usage guides on ARIO-related functions supported by DAQMaster, the comprehensive device management program.

1. Change properties of the coupler and modules
2. Module configuration via virtual mode
3. Check the address map of the Unit
4. Check the diagnostic information of the coupler
5. Update the firmware version of the coupler, etc.

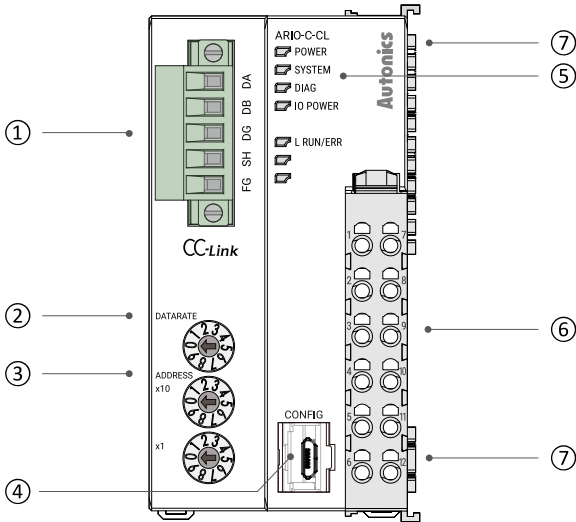
2. Overview of the ARIО-C-CL

2.1. CC-Link Protocol

CC-Link, one of the Fieldbus networks, is an industrial network composed of a topology of RS-485. It supports the transmission distance of up to 100 meters at a transmission rate of 10 Mbps as well as up to 64 stations with a high speed and deterministic data communication. The link scan time supported by CC-Link can process the input signals of sensors that require a high-speed response or for intelligent devices that require a large capacity of data communication. The data link system also supports reducing wiring and costs for building a distributed system.

The ARIО-C-CL supports the CC-Link protocol. This coupler composes the physical structure of connected modules and devices and creates input and output process images linked with the data of CC-Link. The process images make it possible to experience a flexible installation environment, such as the mixed arrangement of analog and digital modules.

2.2. Unit Descriptions



1. CC-Link Communication Connector

It is a connector to connect with CC-Link master station such as PLC.

For detailed information on the communication cable, refer to the 2.3, “CC-Link Communication Connector”.

2. DATARATE Rotary Switch

It is a setting switch to set the transmission rate in the CC-Link communication network.

For detailed information on setting the transmission rate, refer to the 2.4, “Set the Transmission Rate”.

3. Decimal Rotary Switches

It is a setting switch to designate the station number of the coupler in the CC-Link communication network. You can also set the station number in the DAQMaster.

For detailed information on addressing method, refer to the 2.5, “Assign the Station Number”.

4. CONFIG Port

It is a port to connect to the PC where DAQMaster is installed.

1. Port type: USB Type-B Micro

5. Indicators

It displays the status of the coupler and communication connection as shown below. For detailed information on the indicators, refer to the 3, Indicators.

1. Power and operating status of the coupler
2. CC-Link communication status

6. Power Supply Terminal

It is a terminal block that supplies power to the coupler and peripherals. For detailed information on the device supply, refer to the 2.6, "Connections of the Power Terminal".

7. Power Supply contacts

It is a contact that feeds the power input from the power supply terminal.

1. Top input contacts: feed the power supply for the coupler, module, and ABUS to be operated.
2. Bottom input contacts: feed the power supply for input and output signals of the connected module.

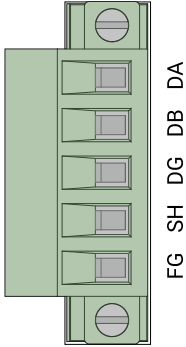
2.3. CC-Link Communication Connector



- Be sure to use the connector and cable approved by the CC-Link Partner Association (CLPA).

The 5-pin PCB connector is used for the CC-Link communication connection.

For more information on the pin assignment, refer to the table below.



Pin no.	Marking on the connector	Color	Description
1	DA: DATA A	Blue	RS-485 High signal
2	DB: DATA B	White	RS-485 Low Signal
3	DG: Data Ground	Yellow	Ground for RS-485 signal
4	SH: Shield	-	Shield
5	FG: Frame Ground	-	Frame Ground

2.4. Set the Transmission Rate



- Be sure to use the connector and cable approved by the CC-Link Partner Association (CLPA).
- Be sure not to exceed the maximum cable length of each transmission rate.
- The maximum overall cable distances are described based on the terminal resistor 110 Ω. For more information on the relationship between the cable distance and terminal resistor, refer to the CC-Link specifications sheet.

Refer to the table below to set the transmission rate via the DATARATE rotary switch.

Be sure to set the transmission rate of the coupler the same as that of the CC-Link master station.

DATARATE



Number of occupied stations ⁰¹⁾	Rotary switch setting	Transmission rate	Maximum overall cable distance
Automatic assignment depending on the data size of the module • Occupied stations: 1 to 4 stations • Extended cyclic setting: 1, 2, 4, 8 times	0	156 kbps	≤ 1200 m
	1	625 kbps	≤ 900 m
	2	2.5 Mbps	≤ 400 m
	3	5 Mbps	≤ 160 m
	4	10 Mbps	≤ 100 m
• Occupied stations: 4 stations fixed • Extended cyclic setting: 1 time	5	156 kbps	≤ 1200 m
	6	625 kbps	≤ 900 m
	7	2.5 Mbps	≤ 400 m
	8	5 Mbps	≤ 160 m
	9	10 Mbps	≤ 100 m

01) Refer to the 5.2, “CC-Link Memory Map Layout”.

2.5. Assign the Station Number



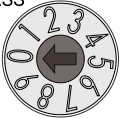
- It is recommended to designate the station number of the coupler the same as the value of the rotary switches.
- The station number cannot be applied while the coupler is operating.
- Be sure to start the coupler again to apply the changed station number.

You can assign the coupler's station number via two decimal rotary switches.

Be sure to set the station number not to be duplicated with other stations considering occupied station numbers in each station (slave stations of the data link).

ADDRESS

x10

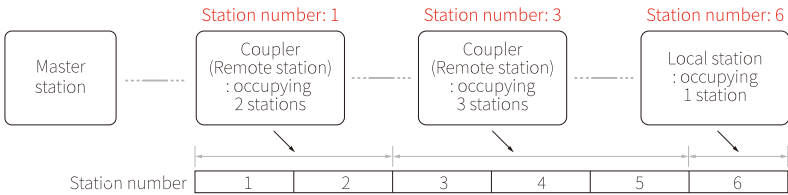


x1



Rotary switches (x10, x1)	Station number
00	The station number assigned by the DAQMaster
01 to 64	1 to 64

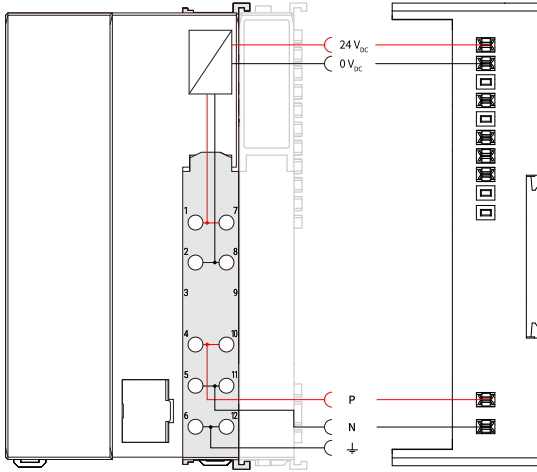
[Example] CC-Link system configuration



2.5.1. Assign the Station Number in the DAQMaster

1. Set the positions of the coupler's decimal rotary switches to 00.
2. To designate the station number in the DAQMaster, go to the **Comm Mode » Property tab of the coupler » Node Address** and press the Enter key.
3. Reset the ARIO unit in the DAQMaster.
4. The station number assigned by the DAQMaster is applied.

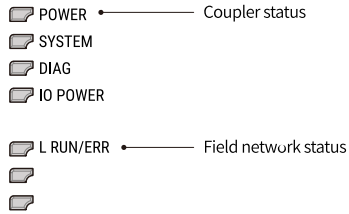
2.6. Connections of the Power Terminal



Terminal no.	Name	Description
1, 7	System Power (24 V _{DC})	Power supply for the coupler, module and ABUS to be operated.
2, 8	System Power (0 V _{DC})	<ul style="list-style-type: none"> • The terminals feed the power supply to the top input contacts. • The POWER indicator lights up.
3, 9	Not Connected (NC)	-
4, 10	Field Power (Positive: 24 V _{DC})	Power supply for the input and output (I/O) signals of the module.
5, 11	Field Power (Negative: 0 V _{DC})	<ul style="list-style-type: none"> • The terminals feed the power supply to the bottom input contacts. • The IO POWER indicator lights up.
6, 12	Frame Ground / Shield	Frame ground

3. Indicators

The indicators of the ARIO-C-CL coupler consist of elements indicating the operating status for the coupler, and connection status for the field network (CC-Link) as shown in the figure below. For detailed information on each indicator, refer to the following tables below.



3.1. LEDs for the Coupler Status

1. The power supply status of the coupler

Indicator	LED color	Status	Description
POWER	Green	ON	Supply voltage: Normal
		OFF	Supply voltage: None

2. The status of the standby mode

Indicator	LED color	Status	Description
SYSTEM	Green	ON	Normal operation
		Flashing	Standby for connecting the master after initialization of the coupler
		OFF	Stop
	Red	ON	<ul style="list-style-type: none"> Coupler initialization failure (non-recoverable) An unrecoverable error occurred. The type of field network and firmware version mismatch (non-recoverable)
		Flashing	<ul style="list-style-type: none"> Field network initialization failure (non-recoverable) Changing the settings of rotary switches (applicable models)
		OFF	Normal operation

3. The status of the module communication (ABUS)

Indicator	LED color	Status	Description
DIAG	Green	ON	Normal operation: Multi/Single-packet works
		Flashing	Hot-swap (normal state)
		OFF	<ul style="list-style-type: none"> The operation of the coupler stopped An error occurred
	Red	ON	ABUS communication error
		Flashing	The models of the replaced module and the previous one mismatch (normal operation)
		Flashing (2 times)	No module connection (non-recoverable)
		Flashing (3 times)	Abnormal module operation (non-recoverable)
		Flashing (4 times)	The number of modules and data size exceeded
		OFF	Normal operation

4. The status of power supply for the module

Indicator	LED color	Status	Description
IO POWER	Green	ON	Supply voltage for the I/O signals of modules : Normal
		OFF	Supply voltage for the I/O signals of modules : None

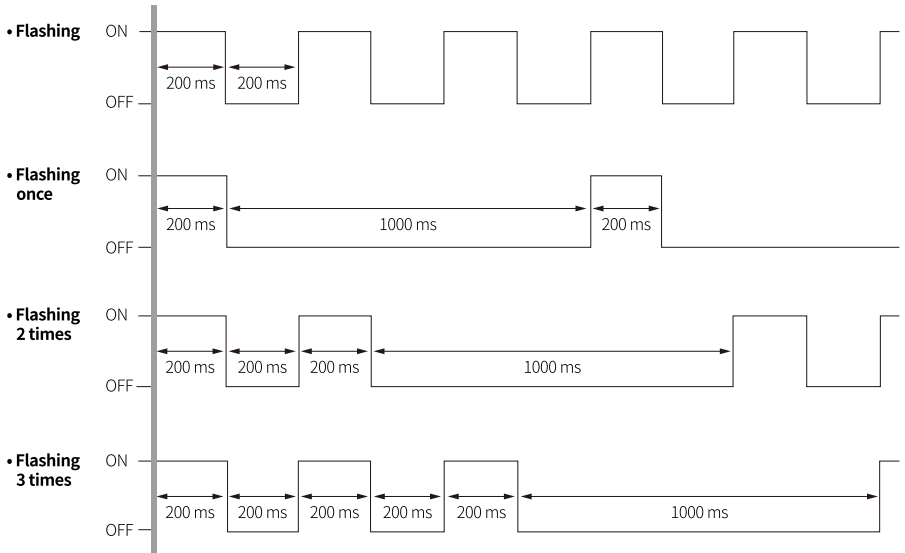
3.2. LEDs for the Field Network Status

1. The status of CC-Link communication and error

Indicator	LED color	Status	Description
L RUN/ERR	Green	ON	Data link is being executed.
		OFF	<ul style="list-style-type: none">• Data link is in the standby state• Unable to detect carrier in the data channel• Timeout• Hardware (PLC CPU) reset
	Red	ON	<ul style="list-style-type: none">• CRC error• Station number error (The range of station numbers is exceeded other than 0 to 64 including the master station)• DATARATE rotary switch error (transmission rate setting error)
		Flashing (0.4 sec)	The settings of transmission rate and station number are changed while the coupler is running.
		OFF	<ul style="list-style-type: none">• Data link is being executed.• Hardware (PLC CPU) reset



Refer to the timing chart below for the flashing operation of indicators.
The operation is repeated as flashing every 200 microseconds and standby for 1 second.

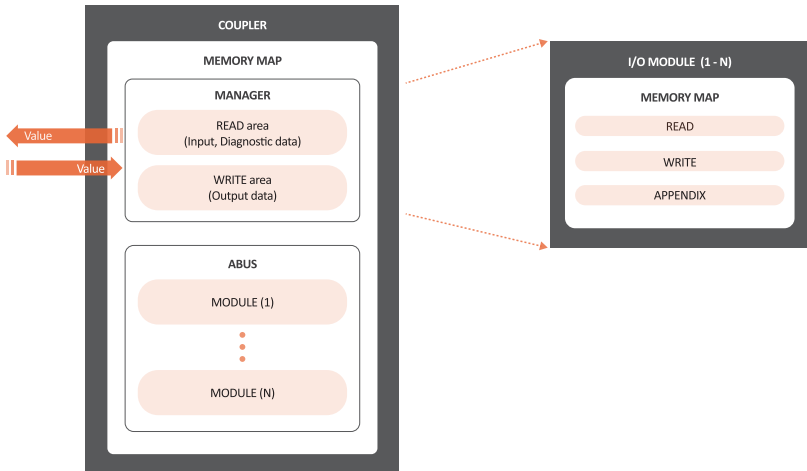


4. Process Images

4.1. Memory Map

The ARIO unit composes the memory map in its memory space to assign and manage the data collected by the coupler and modules. The master in the field network controls the input and output devices via this memory map generated by the ARIO unit.

The memory map is created based on the arrangement and data structure of the ARIO unit as shown in the figure below. The memory map of modules consists of each module and contains its data. The memory map of the coupler allocates the data considering the type (input or output) and sequence of connected modules (e.g., the slot number of each module), and data size to the read and write areas, making it easy to calculate the location of the master's register. In this way, the memory map comprised by the ARIO unit creates the input and output process images for data exchange.



- **READ area**

It is the area that transmits the data collected by the unit to the master in the field network. It contains the input and diagnostic data.

- **WRITE area**

It is the area that transmits the output commands from the master of the field network. It contains the output data.

4.2. Data Processing in the Module

The data of the module is processed depending on the input and output signals.

- **Digital modules**

The bit-oriented digital module indicates the value of the corresponding bit position as 1.

The size of each channel is 1 bit and is grouped into bytes.

- **Analog modules**

The byte-oriented analog module indicates the value of the input or output signal to the corresponding bytes. The size of each channel is grouped into words.

Module	Example of input/output format	Data processing size
Digital input/output : Bit-oriented	2 channels/module (2-CH/module)	1-byte
	4 channels/module (4-CH/module)	1-byte
	8 channels/module (8-CH/module)	1-byte
	16 channels/module (16-CH/module)	2-byte (= 1-word)
Analog input/output : Byte-oriented	8-bit/channel (8-bit/CH)	1-byte
	12-bit/channel (12-bit/CH)	2-byte (= 1-word)
	16-bit/CH (16-bit/CH)	2-byte (= 1-word)
	24-bit/channel (24-bit/CH)	4-byte (= 2-word)

4.2.1. Check the Data of the Modules

You can check the data of modules connected with the coupler as shown in the figure below.

To check the data, go to **Comm Mode » Run » I/O Monitor** in the DAQMaster.

The binary, decimal, and hexadecimal are supported as the display format in the DAQMaster.

1. The value of input signals on the point (or channels) 1 and 2 of the digital input module

- **Binary 0000 0011 (0x03)**

Slot Number	Module Name	Type	Channel	Data	Diagnostic Byte
1	DI08N	R	8	0x03	
	Point 1			1	
	Point 2			1	
	Point 3			0	
	Point 4			0	
	Point 5			0	
	Point 6			0	
	Point 7			0	
	Point 8			0	

2. The value of a voltage of 10.000 V applied to channel 1 of the analog input module

- **Big endian: 0x270D (≈ 10,000_{DEC})**

Slot Number	Module Name	Type	Channel	Data	Diagnostic Byte
1	AI04V1	R	4	0x270D 0003 0003 0000	
	Channel 1			0x270D	
	Channel 2			0x0003	
	Channel 3			0x0003	
	Channel 4			0x0000	
2	AO04V1	W	4	0x2710 0000 0000 0000	
	Channel 1			0x2710	
	Channel 2			0x0000	
	Channel 3			0x0000	
	Channel 4			0x0000	



The data arrangements (the order or sequence) of the analog signal can be expressed as big-endian or little-endian in the DAQMaster.

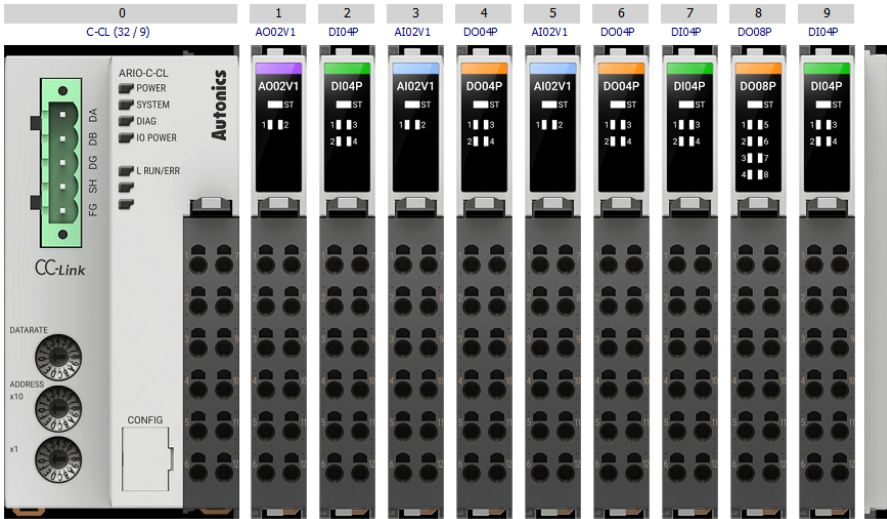
To select the endianness, go to **Comm Mode » Property tab of the coupler » Endian**. (factory setting: Big-endian)

4.3. Example of the Process Image

You can check the input and output process images of the unit (coupler + modules) on the **AddressMap** menu in the DAQMaster. Firstly, the input modules are mapped, and then the output modules are mapped. The first position of the input process image contains diagnostic information of the coupler with a size of 16 bits (1 word).

The process image of the CC-Link protocol is composed of information in 16 bits units through the Remote registers (RWr and RWw). The coupler does not use the information in bit units such as Remote input and output (RX and RY) for the data exchange.

DAQMaster: An arrangement example of the ARIO unit



DAQMaster: The address map of the ARIO unit

Slot Number : Module Name	Address	Type	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
3 : AI02V1 - Channel 1_2 : DI04P	RWr0	R					P3	P2	P1	P0	C1H	C1H	C1H	C1H	C1H	C1H	C1H	C1H
3 : AI02V1 - Channel 1	RWr1	R	C1L	C1L	C1L	C1L	C1L	C1L	C1L	C1L	C2H	C2H	C2H	C2H	C2H	C2H	C2H	C2H
5 : AI02V1 - Channel 1_3 : AI0...	RWr2	R	C2L	C2L	C2L	C2L	C2L	C2L	C2L	C2L	C1H	C1H	C1H	C1H	C1H	C1H	C1H	C1H
5 : AI02V1 - Channel 1	RWr3	R	C1L	C1L	C1L	C1L	C1L	C1L	C1L	C1L	C2H	C2H	C2H	C2H	C2H	C2H	C2H	C2H
7 : DI04P_5 : AI02V1 - Channel 1	RWr4	R					P3	P2	P1	P0	C2L	C2L	C2L	C2L	C2L	C2L	C2L	C2L
9 : DI04P	RWr5	R													P3	P2	P1	P0
1 : AO02V1 - Channel 1	RWw0	W	C1H	C1H	C1H	C1H	C1H	C1H	C1H	C1H	C1L	C1L	C1L	C1L	C1L	C1L	C1L	C1L
1 : AO02V1 - Channel 2	RWw1	W	C2H	C2H	C2H	C2H	C2H	C2H	C2H	C2H	C2L	C2L	C2L	C2L	C2L	C2L	C2L	C2L
6 : DO04P_4 : DO04P	RWw2	W					P3	P2	P1	P0					P3	P2	P1	P0
8 : DO08P	RWw3	W									P7	P6	P5	P4	P3	P2	P1	P0

4.3.1. Input Process Image

Byte		Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0: Coupler	Diagnostic Data High Byte ⁰¹⁾							
1		Diagnostic data Low Byte ⁰¹⁾							
2	2: DI04P	-				Ch.4	Ch.3	Ch.2	Ch.1
3	3: AI02V1	Ch.1 High Byte							
4		Ch.1 Low Byte							
5		Ch.2 High Byte							
6		Ch.2 Low Byte							
7	5: AI02V1	Ch.1 High Byte							
8		Ch.1 Low Byte							
9		Ch.2 High Byte							
10		Ch.2 Low Byte							
11	7: DI04P	-				Ch.4	Ch.3	Ch.2	Ch.1
12	9: DI04P	-				Ch.4	Ch.3	Ch.2	Ch.1

01) Refer to the 4.3.3, “Mapping of the Coupler Diagnostic Data”.

4.3.2. Output Process Image

Byte		Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1: AO02V1	Ch.1 High Byte							
1		Ch.1 Low Byte							
2		Ch.2 High Byte							
3		Ch.2 Low Byte							
4	4: DO04P	-				Ch.4	Ch.3	Ch.2	Ch.1
5	6: DO04P	-				Ch.4	Ch.3	Ch.2	Ch.1
6	8: DO08P	Ch.8	Ch.7	Ch.6	Ch.5	Ch.4	Ch.3	Ch.2	Ch.1

4.3.3. Mapping of the Coupler Diagnostic Data

To check the value of the coupler diagnosis in the DAQMaster, go to **Comm Mode » Property tab of the coupler » Coupler State**.

Byte		Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	High	Reserved							
1	Low	CS	MS	WP	AEM	-	ACS	AT	AC

AC (ABUS Configuration)

The diagnostic information for the configuration of the coupler and modules

0: Normal state

1: Module configuration error

- Cause 1: No connected modules
- Cause 2: The number of connected modules exceeded
- Cause 3: The data size of module exceeded
- Cause 4: Invalid arrangement of modules

AT (ABUS Timeout)

The occurrence information of timeout

0: Multi-packet state (normal)

1: Single-packet state (timeout occurred)

- Cause 1: The module detached
- Cause 2: The module not recognized due to a noise
- Cause 3: Hot-swap state
- Cause 4: The module operation error

ACS (ABUS Communication State)

ABUS communication status

0: Normal state

1: Communication error

- Cause 1: Replaced module mismatched
- Cause 2: Unknown communication error occurred

AEM (ABUS Empty Module)

Checking the connected module

0: Normal state (one or more modules connected)

1: No module connected

WP (Warranty Period)

Notice of product warranty period

(≤ 3 years, 157,680_{DEC})

0: Within the warranty period

1: End of warranty period

MS (Module State)

The status of connected modules
(running with DIAG indicator)

0: Normal state

1: Error

CS (Coupler State)

The information on the coupler state
(running with SYSTEM indicator)

0: Normal state

1: Error

- Cause 1: Error occurred in the coupler initialization and settings, etc.
- Cause 2: Error occurred in the field network connection, etc.

5. CC-Link Address Area

5.1. Data Types

The remote device station exchanges bit unit or word unit data through the cyclic transmission. The data types handled by CC-Link are shown in the table below.

Data unit	Signal name	Description
Bit	RX (Remote input)	The input data transmitted from the remote station to the master station
	RY (Remote output)	The output data transmitted from the master station to the remote station
Word	RWr (Remote register read/receive)	The input data transmitted from the remote station to the master station
	RWw (Remote Register write/transmit)	The output data transmitted from the master station to the remote station

5.2. CC-Link Memory Map Layout

- CC-Link operating mode: Ver 2.0
- Number of occupied stations per unit: 1 to 4 stations
- Extended cyclic setting: 1, 2, 4, 8 times

Occupied stations	Signal	1 cycle	2 cycles	4 cycles	8 cycles
1 station	RX, RY	32-bit each	32-bit each	64-bit each	128-bit each
	RWr, RWw	4-word each	8-word each	16-word each	32-word each
2 stations	RX, RY	64-bit each	96-bit each	192-bit each	384-bit each
	RWr, RWw	8-word each	16-word each	32-word each	64-word each
3 stations	RX, RY	96-bit each	160-bit each	320-bit each	640-bit each
	RWr, RWw	12-word each	24-word each	48-word each	96-word each
4 stations	RX, RY	128-bit each	224-bit each	448-bit each	896-bit each
	RWr, RWw	16-word each	32-word each	64-word each	128-word each

5.3. Memory Map of the ARIO Unit

1. Data area of the remote I/O

- The ARIO coupler does not use the RX and RY for the data exchange.

Link input	Signal name	Link output	Signal name
RX00 to RX3F	Reserved	RY00 to RY3F	Reserved

2. Data area of the remote register

- The "n" is the start I/O number assigned to the master station.
- Example of CC-Link configuration: 2 occupied stations, 1 cycle (1 time)
- Total data size of RWr/RWw: 8-word each

Link register	Signal name	Link register	Signal name
RWrn0	Coupler Diag.	RWwn0	AO 1, channel 1
RWrn1	DI 1, channel 1 to 4 AI 1, channel 1 MSB	RWwn1	AO 1, channel 2
RWrn2	AI 1, channel 1 LSB AI 1, channel 2 MSB	RWwn2	DO 1, channel 1 to 4 DO 2, channel 1 to 4
RWrn3	AI 1, channel 2 LSB AI 2, channel 1 MSB	RWwn3	DO 3, channel 1 to 4
RWrn4	AI 2, channel 1 LSB AI 2, channel 2 MSB	RWwn4	Not used
RWrn5	AI 2, channel 2 LSB DI 2, channel 1 to 4	RWwn5	Not used
RWrn6	DI 3, channel 1 to 4	RWwn6	Not used
RWrn7	Not used	RWwn7	Not used

6. GX-Works2 Guide



- Be sure to see the version compatibility table of the ARIO Series on our Autonics website to check the software/firmware(SW) and hardware(HW) versions of the coupler and modules.
- Refer to the 7.2, “Update the Firmware Version” to update to the latest software(firmware) version.

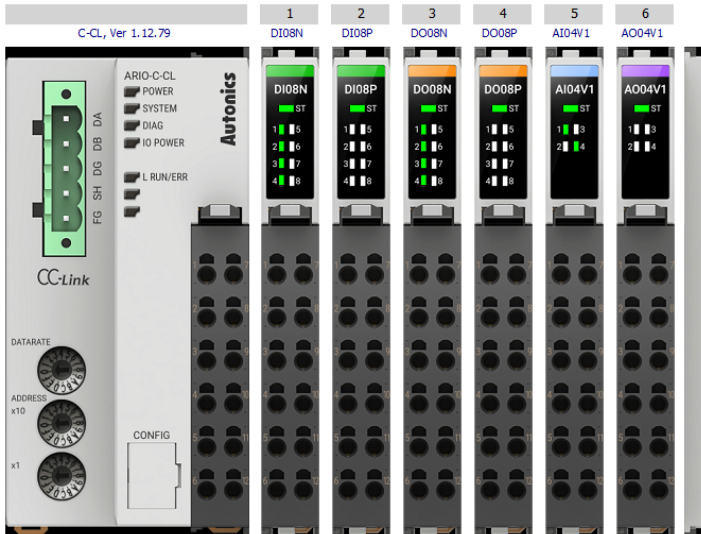
6.1. Before You Begin

Firstly, this chapter describes how to connect the ARIO unit, arranged as shown in the figure below, to the CC-Link master station.

After that, the following descriptions are given in this chapter:

- Read the input signals on channel 1 to 4 of the digital input module (DI08N, slot 1).
- Write the output signals on channel 1 to 4 of the digital output module (DO08N, slot 3).
- Monitor the data of connected modules.

Configuration of the ARIO unit

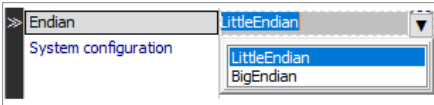


Configuration of CC-Link master station

- Mitsubishi PLC CPU: Q03UDV
- Mitsubishi Network Module: QJ61BT11N
- Project Planning Software: GX-Works2 Ver 1

Settings of the ARIO coupler

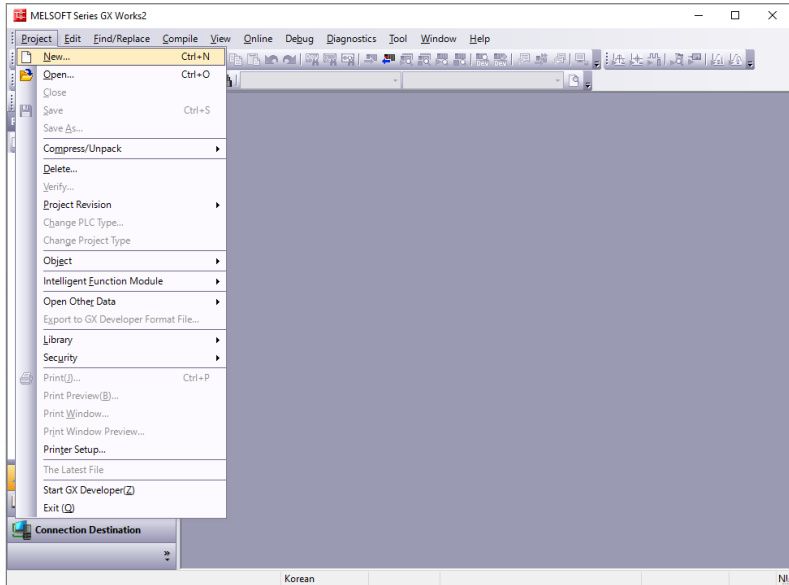
- The setting of station number: 1
Set the positions of the decimal rotary switches to 01.
- The setting of transmission rate: 10 Mbps
Set the value of the DATARATE rotary switch to 9.
(Set the transmission rate same as the type of PLC CPU.)
- Endian: Little endian
The PLC used in this chapter supports the little-endian format.
To select the Little endian in the DAQMaster, go to **communication mode » Properties tab of coupler » Endian**.



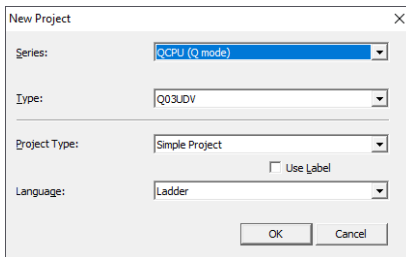
This chapter only describes based on the Mitsubishi's master (PLC) and software.
For detailed information on communication connection and usage method with the master, refer to the user manuals provided by the specific manufacturer.

6.2. Create a Mitsubishi PLC Project

1. Click the **Project » New...** in the top menu.

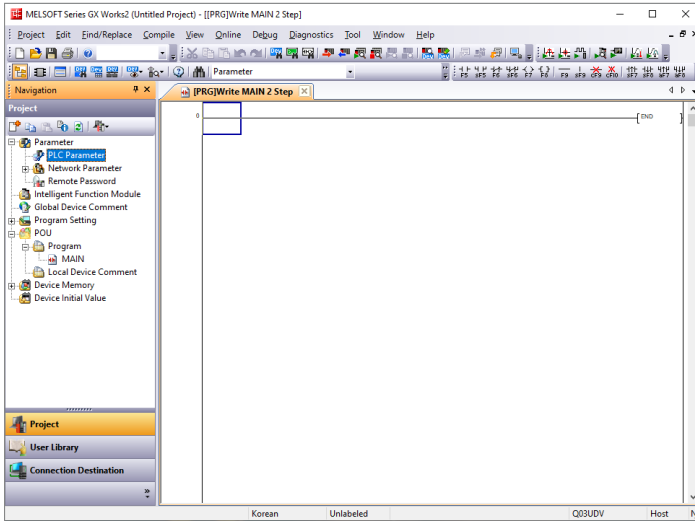


2. Configure the properties of connected PLC in the New Project window and click the **OK**.

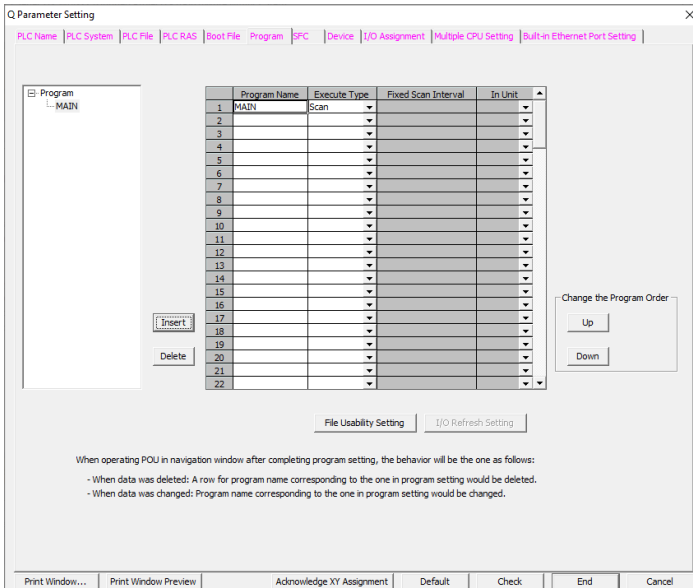


- **Series:** PLC CPU series name
- **Type:** PLC CPU model name
- **Language:** Ladder

3. Double-click the **Project View » Parameter » PLC Parameter** on the left side of the screen.



4. To register the **MAIN** program, click the **Insert** on the **Program** tab in the Q Parameter Setting window.



- To import the information on the currently connected PLC, click the **Read PLC Data** on the **I/O Assignment** tab in the Q Parameter Setting window. (The PLC and ARIO unit are in the Online state.)

Q Parameter Setting

PLC Name | PLC System | PLC File | PLC RAS | Boot File | Program | SFC | Device | **I/O Assignment** | Multiple CPU Setting | Built-in Ethernet Port Setting

I/O Assignment(*1)

No.	PLC	Slot	PLC	Type	Model Name	Points	Start XY
0							
1	0(0-0)		Intelligent			32Points	
2	1(0-1)		Intelligent			32Points	
3	2(0-2)		Intelligent			32Points	
4							
5							
6							
7							

Switch Setting
Detailed Setting
Select PLC type
New Module

Assigning the I/O address is not necessary as the CPU does it automatically.
Leaving this setting blank will not cause an error to occur.

Base Setting(*1)

	Base Model Name	Power Model Name	Extension Cable	Slots
Main				3
Ext.Base1				
Ext.Base2				
Ext.Base3				
Ext.Base4				
Ext.Base5				
Ext.Base6				
Ext.Base7				

Base Mode
Auto
Detail
8 Slot Default
12 Slot Default
Select module name

Export to CSV File | Import Multiple CPU Parameter | **Read PLC Data**

(*1)Setting should be set as same when using multiple CPU.

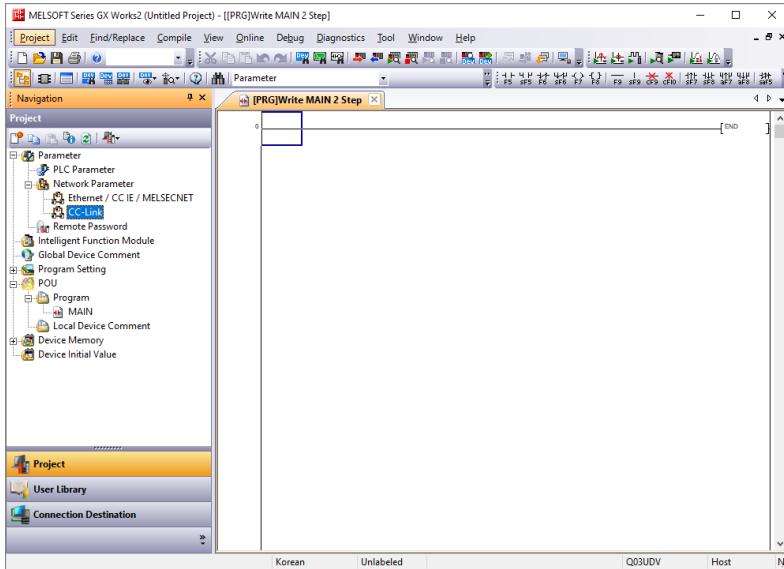
Print Window... | Print Window Preview | Acknowledge XY Assignment | Default | Check | End | Cancel

- To check an error occurrence, click the **Check** at the bottom of the Q Parameter Setting window.
- To save the settings, click the **End**.

6.3. Configure the CC-Link Parameters

6.3.1. General Settings

1. Double-click the **Project View** » **Network Parameter** » **CC-Link** on the left side of the screen.



2. To set each parameter in the CC-Link Module Configuration window, refer to the descriptions below.

- Number of Modules: The number of modules connected to the PLC CPU
- **Start I/O No.:** The head address of the network module
- Type: Master Station (→ CC-Link Master Board)
- Mode: Remote Net (Ver.2 Mode) (→ CC-Link Ver 2.0)
- Total Module Connected: The number of couplers connected to the CC-Link network
- Remote register(RWr, RWw): Start address of ARIO input/output module (e.g., D100, D200)
- Station Information Setting: Configuration of the coupler connected to the CC-Link network

Number of Modules <input type="text" value="1"/> Boards		Blank : No Setting <input type="checkbox"/> Set the station information in the CC-Link configuration window	
	1	2	
Start I/O No.	0020		
Operation Setting	Operation Setting		
Type	Master Station		
Master Station Data Link Type	PLC Parameter Auto Start		
Mode	Remote Net(Ver. 2 Mode)		
Total Module Connected	1		
Remote input(RX)			
Remote output(RY)			
Remote register(RWr)	D100		
Remote register(RWw)	D200		
Ver. 2 Remote input(RX)			
Ver. 2 Remote output(RY)			
Ver. 2 Remote register(RWr)			
Ver. 2 Remote register(RWw)			
Special relay(SB)			
Special register(SW)			
Retry Count	3		
Automatic Reconnection Station Count	1		
Standby Master Station No.			
PLC Down Select	Stop		
Scan Mode Setting	Asynchronous		
Delay Time Setting	0		
Station Information Setting	Station Information		
Remote Device Station Initial Setting	Initial Setting		
Interrupt Settings	Interrupt Settings		

3. To configure the coupler, click the **Station Information**.

4. The CC-Link Station Information Module window appears.

CC-Link Station Information Module 1

Station No.	Station Type	Expanded Cyclic Setting	Number of Occupied Stations	Remote Station Points	Reserve/Invalid Station Select	Intelligent Buffer Select (Word)		
						Send	Receive	Automatic
I/1	Ver.1 Remote I/O Station	Single	Occupied Station 1	32Points	No Setting			

Intelligent device station at station type also includes local station and standby master station.

Default Check End Cancel

5. To configure the coupler, refer to the descriptions below.

Station No.	Station Type	Expanded Cyclic Setting	Number of Occupied Stations	Remote Station Points	Reserve/Invalid Station Select
1/ 1	Ver.2 Remote Device Station	Single	Occupied Stations 4	128Points	No Setting

Station Type

Select the Ver.2 Remote Device Station (only CC-Link Ver 2.0 is supported.)

Number of Occupied Stations and Expanded Cyclic Setting

- Set the occupied station and extended cyclic setting the same as the DATARATE rotary switch setting of the coupler.
- The figure above shows:
 - Occupied stations: 4 stations,
 - Extended cyclic setting: Single (1 time),
 - because the value of the DATARATE rotary switch of the coupler is 9.

Number of occupied stations ⁰¹⁾	Rotary switch setting	Transmission rates ⁰²⁾
Automatic assignment depending on the data size of the module • Occupied stations: 1 to 4 stations • Extended cyclic setting: 1, 2, 4, 8 times	0	156 kbps
	1	625 kbps
	2	2.5 Mbps
	3	5 Mbps
• Occupied stations: 4 stations fixed • Extended cyclic setting: 1 time	4	10 Mbps
	5	156 kbps
	6	625 kbps
	7	2.5 Mbps
	8	5 Mbps
	9	10 Mbps

01) Refer to the 5.2, “CC-Link Memory Map Layout”.

02) It must be the same as the transmission rate of the master.

6. If multiple devices are connected and the number of occupied stations is different, designate the number right side of the **Station No.** as the station number. Set the positions of decimal rotary switches on the coupler to that station number.

Station No.	Station Type	Expanded Cyclic Setting	Number of Occupied Stations	Remote Station Points	Reserve/Invalid Station Select
1/1	Ver.2 Remote Device Station	Single	Occupied Stations 4	128Points	No Setting

7. To check an error occurrence, click the **Check** at the bottom of the CC-Link Station Information Module window. To save the settings, click the **End**.

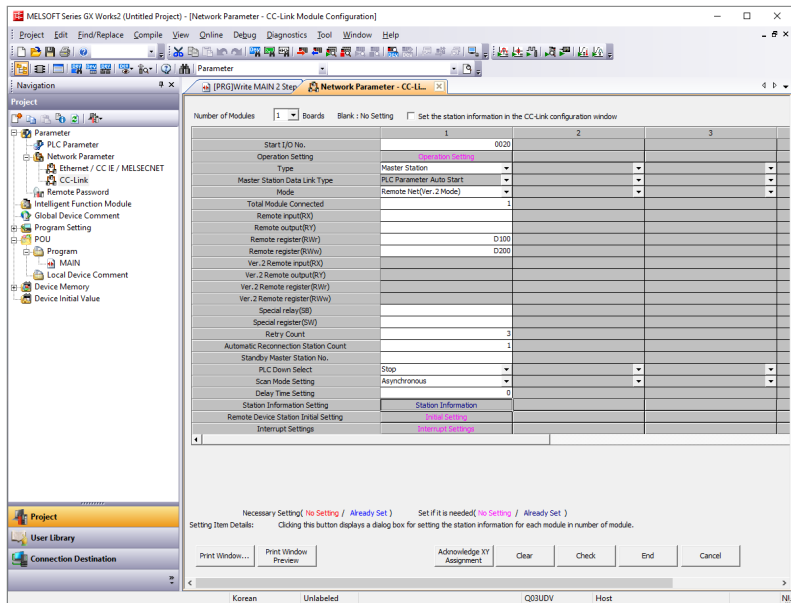
CC-Link Station Information Module 1 ×

Station No.	Station Type	Expanded Cyclic Setting	Number of Occupied Stations	Remote Station Points	Reserve/Invalid Station Select	Intelligent Buffer Select(Word)		
						Send	Receive	Automatic
1/1	Ver.2 Remote Device Station	Single	Occupied Stations 4	128Points	No Setting			

Intelligent device station at station type also includes local station and standby master station.

Default
Check
End
Cancel

8. To check an error occurrence, click the **Check** at the bottom of the CC-Link Module Configuration window. To save the settings, click the **End**.



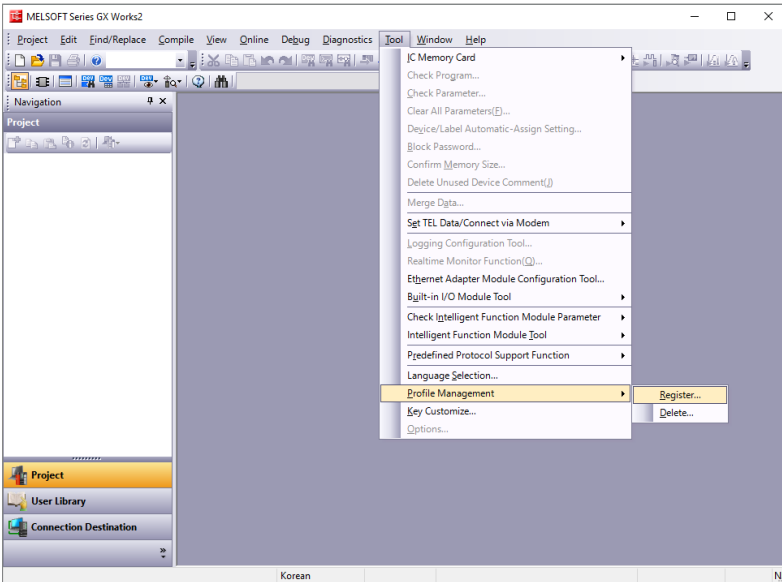
6.3.2. Settings with CSP+

1. Install the CSP+ File

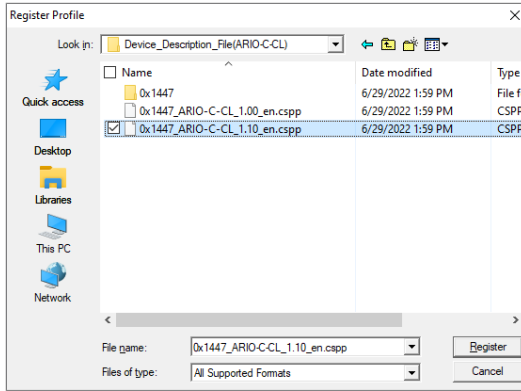


CC-Link Family System Profile Plus (CSP+) file defines the information of connected devices in CC-Link and CC-Link IE Field system. The CC-Link project planning software uses the CSP+ files to enable data exchange between the master and coupler. This file contains information about device specifications, parameters related to the network (occupied station and station type), input/output data (memory map), etc.

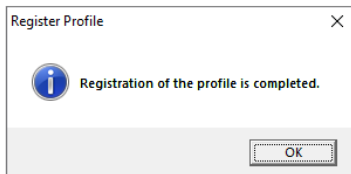
1. Download the CSP+ file of the ARIO-C-CL on our Autonics website.
2. Refer to the README.txt in the downloaded folder and select the CSP+ file suitable for the S/W version of the coupler.
3. Launch the GX-Works2.
4. Click the **Tool** » **Profile Management** » **Register...** in the top menu before opening a project file.



5. Select the downloaded CSP+ file and click the **Register**.



6. To install the CSP+ file, click the **OK**.



2. Configure the CC-Link parameters

1. Double-click the **Project View » Network Parameter » CC-Link** on the left side of the screen.
2. Firstly, select the checkbox of **Set the station information in the CC-Link configuration window** in the CC-Link Module Configuration window. To set each parameter, refer to the descriptions below.

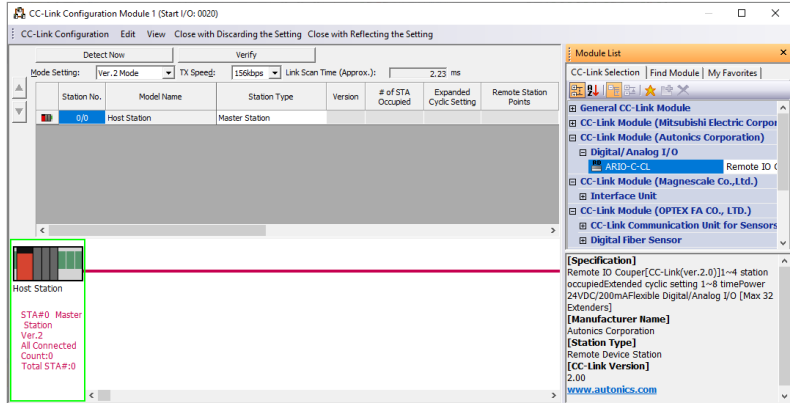
- Number of Modules: The number of modules connected to the PLC CPU
- **Start I/O No.:** The head address of the network module
- Type: Master Station (→ CC-Link Master Board)
- Mode: Remote Net (Ver.2 Mode) (→ CC-Link Ver 2.0)
- Total Module Connected: Automatic setting after the CC-Link configuration
- Remote register (RWr, RWw): Enter the start address of ARIO input/output module after the CC-Link configuration.
- Station Information Setting: Configure the coupler via CSP+ file.

Number of Modules	1	Boards	Blank : No Setting	<input checked="" type="checkbox"/> Set the station information in the CC-Link configuration window
	1		2	
Start I/O No.	0020			
Operation Setting	Operation Setting			
Type	Master Station			
Master Station Data Link Type	PLC Parameter Auto Start			
Mode	Remote Net(Ver.2 Mode)			
Total Module Connected(*1)	0			
Remote input(RX)				
Remote output(RY)				
Remote register(RWr)				
Remote register(RWw)				
Ver.2 Remote input(RX)				
Ver.2 Remote output(RY)				
Ver.2 Remote register(RWr)				
Ver.2 Remote register(RWw)				
Special relay(SB)				
Special register(SW)				
Retry Count	3			
Automatic Reconnection Station Count	1			
Standby Master Station No. (*1)				
PLC Down Select	Stop			
Scan Mode Setting	Asynchronous			
Delay Time Setting	0			
Station Information Setting	CC-Link Configuration Setting			
Remote Device Station Initial Setting	Initial Setting			
Interrupt Settings	Interrupt Settings			

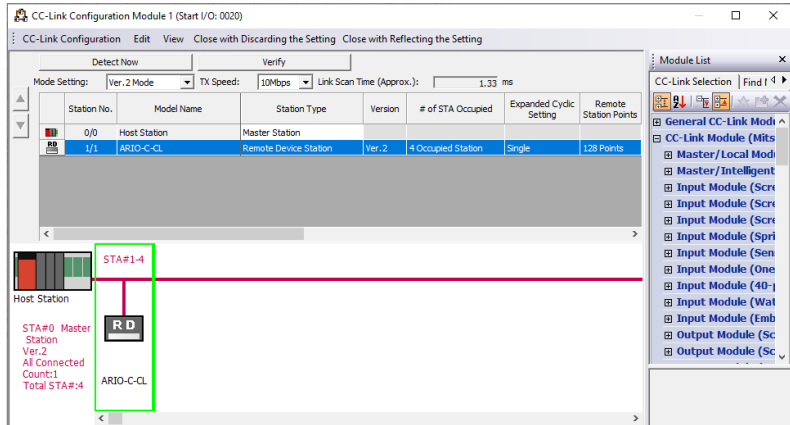
3. To configure the coupler, click the **CC-Link Configuration Setting**.

4. The CC-Link Configuration Module window appears.

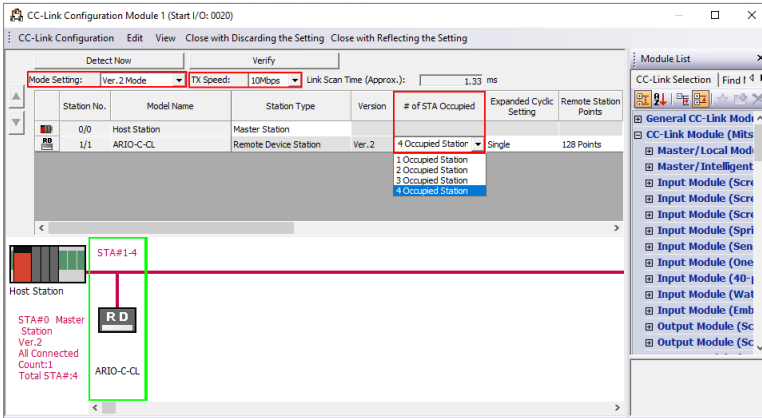
Check whether **Module List** » **CC-Link Module (Autonics Corporation)** » **ARIO-C-CL** is added on the right side of the screen.



5. Drag and Drop the ARIO-C-CL to the Host Station direction.



6. Set the # of STA Occupied the same as the value of the DATARATE rotary switch on the coupler.
- **Mode Setting:** Ver.2 Mode (→ CC-Link Ver 2.0) / **TX Speed:** Transmission rate



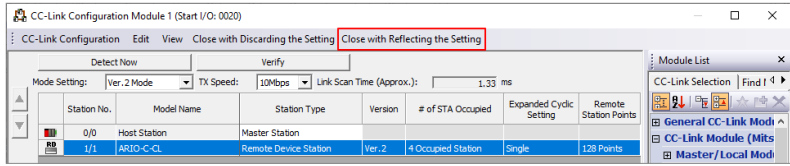
Number of occupied stations ⁰¹⁾	Rotary switch setting	Transmission rates ⁰²⁾
Automatic assignment depending on the data size of the module	0	156 kbps
• Occupied stations: 1 to 4 stations	1	625 kbps
• Extended cyclic setting: 1, 2, 4, 8 times	2	2.5 Mbps
	3	5 Mbps
	4	10 Mbps
• Occupied stations: 4 stations fixed	5	156 kbps
• Extended cyclic setting: 1 time	6	625 kbps
	7	2.5 Mbps
	8	5 Mbps
	9	10 Mbps

01) Refer to the 5.2, “CC-Link Memory Map Layout”.

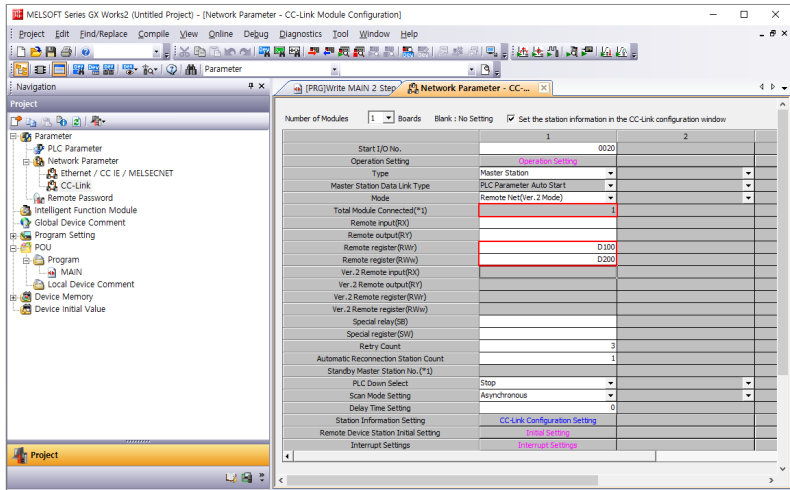
02) It must be the same as the transmission rate of the master.

7. If multiple devices are connected and the number of occupied stations is different, designate the number right side of the **Station No.** as the station number. Set the positions of decimal rotary switches on the coupler to that station number.

- Click the **Close with Reflecting the Setting** in the top menu.

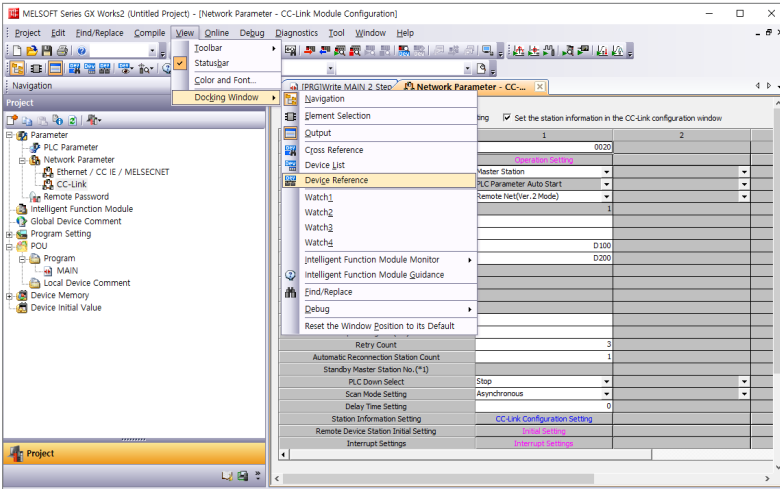


- The number of couplers connected to the Total Module Connected is applied. Specify the start address of the ARIO input/output module to the Remote Register (RWr, RWw).

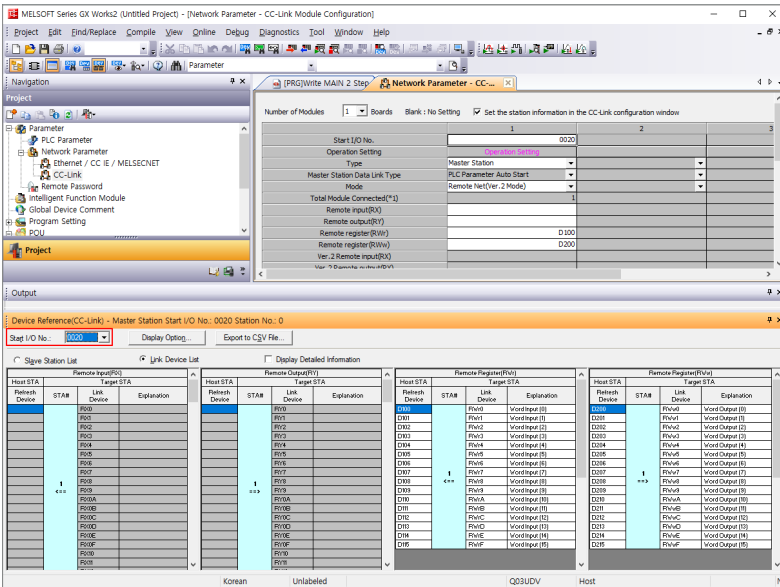


- To check an error occurrence, click the **Check** at the bottom of the window after the configuration is completed. To save the settings, click the **End**.

11. Click the **View » Docking Window » Device Reference** in the top menu.

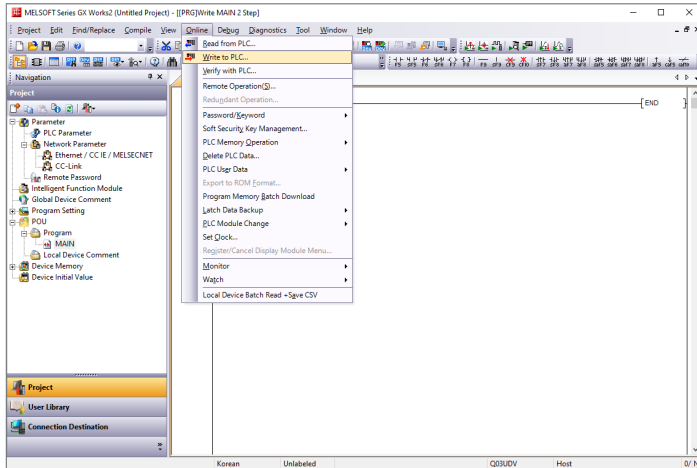


12. To check the mapping information of the ARIO unit, select the Start I/O No. in the Device Reference(CC-Link) window.

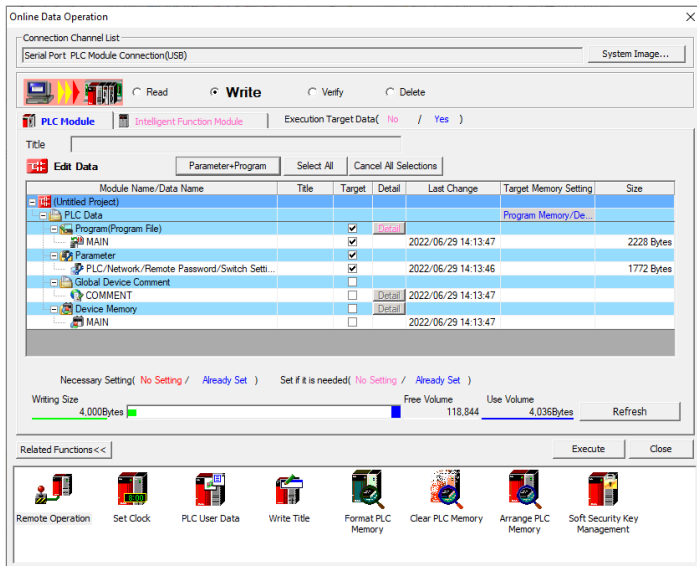


6.4. Download the Program

1. Click the **Online » Write to PLC...** in the top menu.



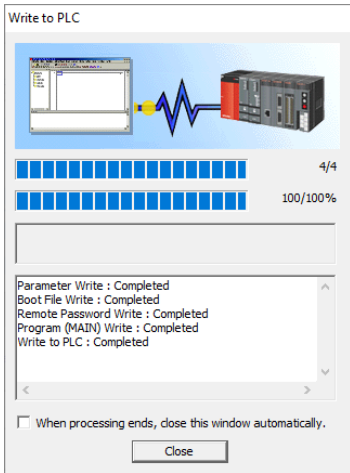
2. Click the **Parameter+Program** in the Online Data Operation window.



3. Click the **Execute** after confirming that all checkboxes of the Target below are selected.

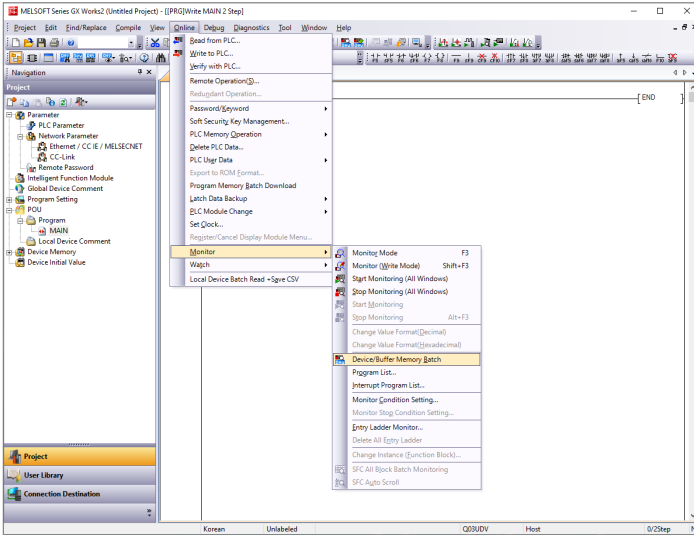
Module Name/Data Name	Title	Target	Detail	Last Change	Target Memory Setting	Size
(Untitled Project)						
PLC Data					Program Memory/De...	
Program(Program File)		<input checked="" type="checkbox"/>	Detail			
MAIN		<input checked="" type="checkbox"/>		2022/06/29 14:13:47		2228 Bytes
Parameter		<input checked="" type="checkbox"/>				
PLC/Network/Remote Password/Switch Seti...		<input checked="" type="checkbox"/>		2022/06/29 14:13:46		1772 Bytes
Global Device Comment		<input type="checkbox"/>				
COMMENT		<input type="checkbox"/>	Detail	2022/06/29 14:13:47		
Device Memory		<input type="checkbox"/>	Detail			
MAIN		<input type="checkbox"/>		2022/06/29 14:13:47		

4. Download is completed. Reset the PLC CPU.

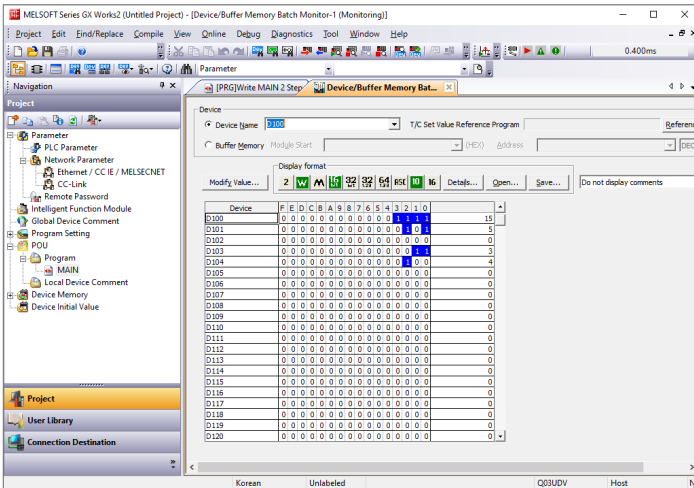


6.5. Monitor the I/O Data

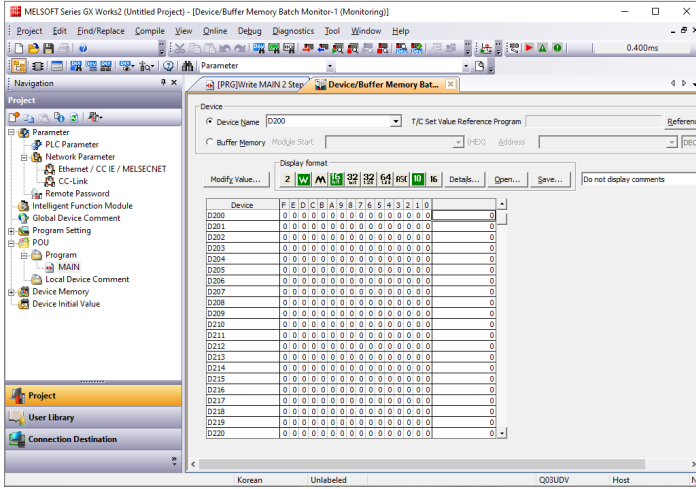
1. Click the **Online » Monitor » Device/Buffer Memory Batch** in the top menu.



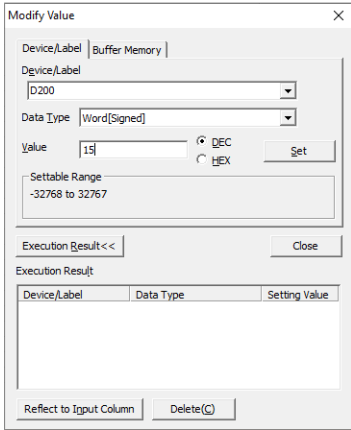
2. Enter the **D100** which is the start address of RWr to the Device Name.
 You can see that the input signals are applied to channel 1 to 4 of the first digital input module.



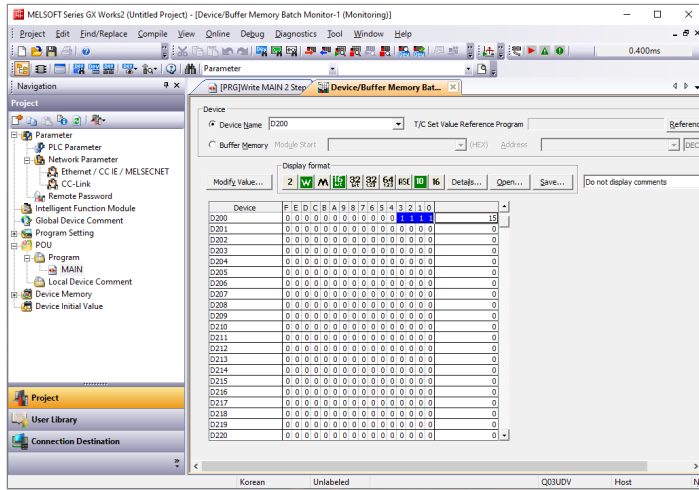
- To check the address of the output module, enter the **D200** which is the start address of RWw to the Device Name. To apply the output signals to channel 1 to 4 of the first output module, double-click the value area on the right side of the mapping of the bits.



- Enter the value of 15 to the Value area and click the **Set**. (15_{dec} = Binary 0000 1111)



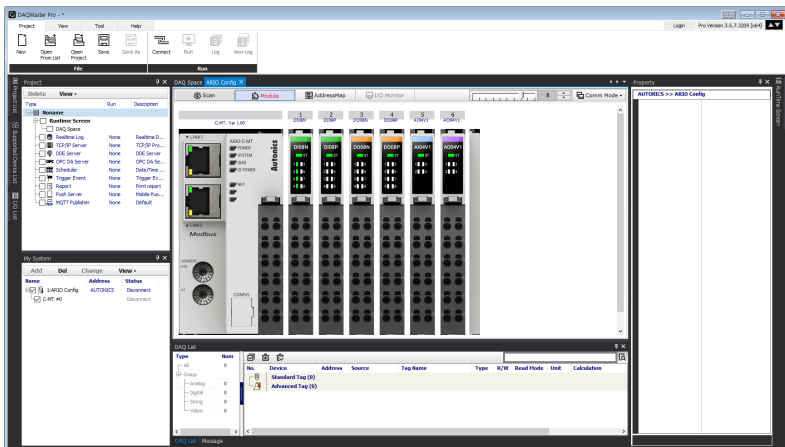
5. You can see that the output signals are applied as shown in the figure below.
 (The channel indicators (no. 1 to 4) of digital output module light up.)



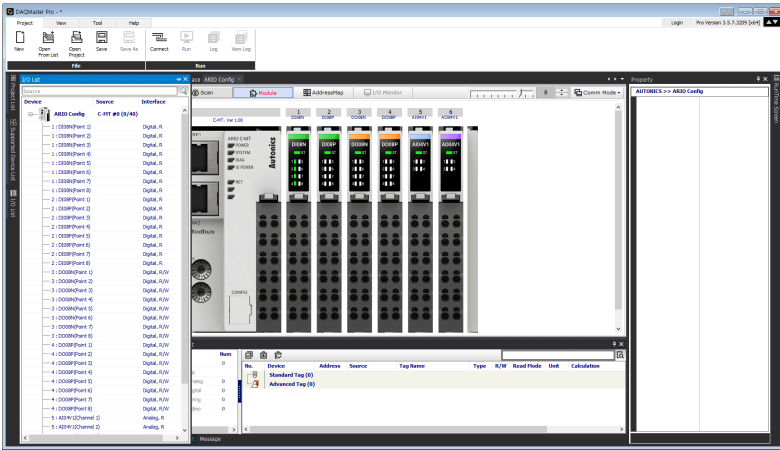
7. DAQMaster

7.1. Monitor the ARIO Unit

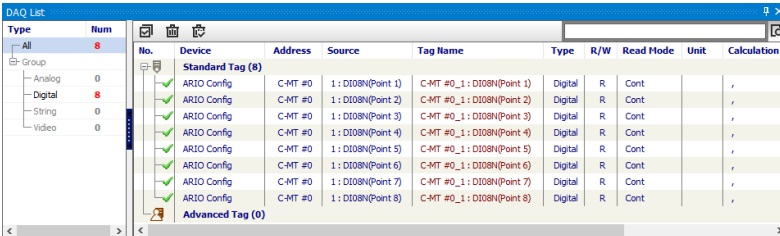
1. Connect the CONFIG port of the ARIO coupler to the PC where the DAQMaster is installed.
2. Select the **Supported Device List » AUTONICS » ARIO Config** to add the ARIO coupler and then select the **Connect » Scan** to import the connected ARIO unit. (Comm Mode state)



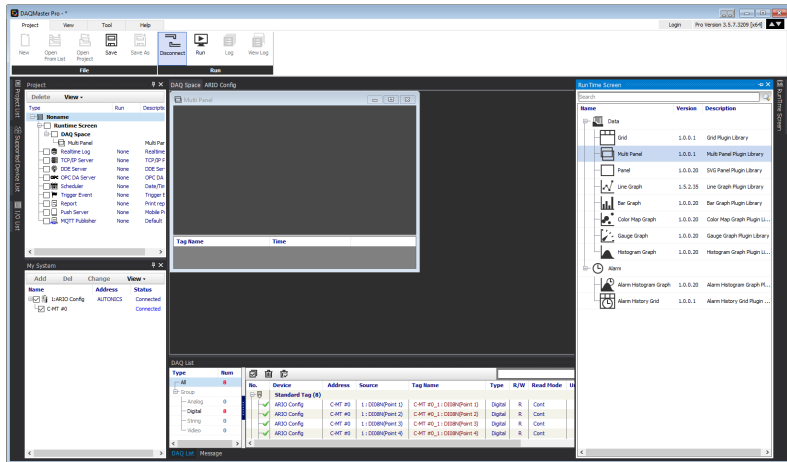
3. When Selecting the I/O List » **ARIO Config**, the tag list of the connected input/output module is displayed. Double-click the tag to be monitored to add it on the DAQ List window.



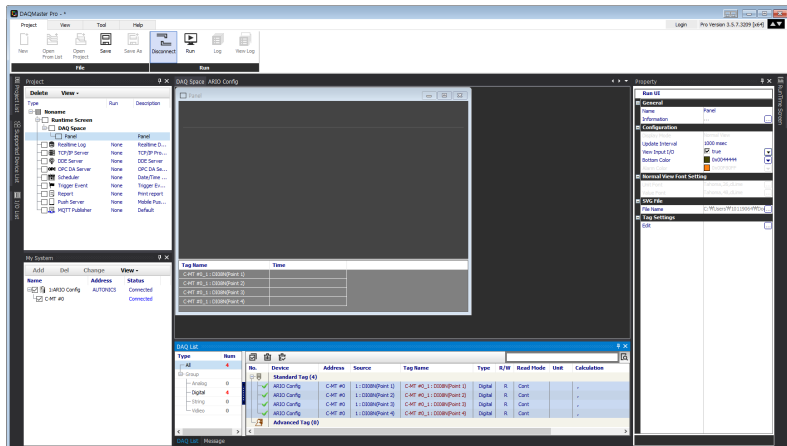
4. The tags are added on the DAQ List window as shown below.



- Double-click the **RunTime Screen » Data » (e.g.) Multi Panel** to configure the visualized monitoring screen. A multi-panel window will be created on the DAQ Space window.



- Drag and drop the tags added on the DAQ List window to the Multi Panel window.



7. When selecting the **Project » Run**, you can monitor the channel status of the module.

The screenshot displays the DACMaster Pro software interface during a 'Run' operation. The main window shows a grid of channel status indicators for eight channels (int 1 to int 8). The status for each channel is as follows:

Channel	Status	Time
int 1	On	5:05:27 PM
int 2	On	5:05:27 PM
int 3	On	5:05:27 PM
int 4	Off	5:05:27 PM
int 5	Off	5:05:27 PM
int 6	Off	5:05:27 PM
int 7	Off	5:05:27 PM
int 8	Off	5:05:27 PM

Below the status grid, a 'Tag Name' table lists the channels and their corresponding tags:

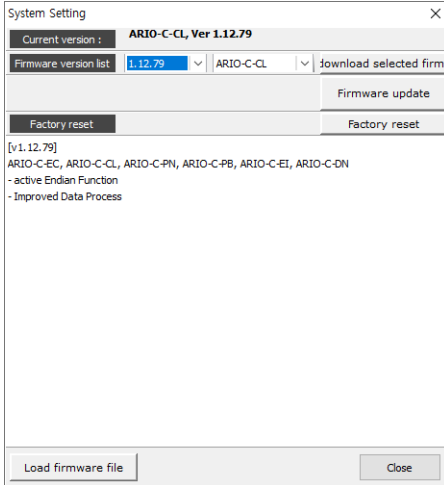
Tag Name	Time
C-INT #1_1 (C0000HWet-0)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-2)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-3)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-6)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-0)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-6)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-7)	5/15/2022 5:05:27 PM
C-INT #1_1 (C0000HWet-0)	5/15/2022 5:05:27 PM

The 'DAC List' table at the bottom provides a detailed view of the channels and their configurations:

Type	Item	Bin	Device	Standard Tag (S)	Address	Source	Tag Name	Type	R/W	Board Mode	Unit	Calibration
Bin	0	0	AR00 Config	C-INT #0	1, C0000HWet-0	C-INT #0_1_1 (C0000HWet-0)	Digital	R	Cont			
Digital	0	0	AR00 Config	C-INT #0	1, C0000HWet-2	C-INT #0_1_1 (C0000HWet-2)	Digital	R	Cont			
Bin	0	0	AR00 Config	C-INT #0	1, C0000HWet-3	C-INT #0_1_1 (C0000HWet-3)	Digital	R	Cont			
Bin	0	0	AR00 Config	C-INT #0	1, C0000HWet-6	C-INT #0_1_1 (C0000HWet-6)	Digital	R	Cont			
Bin	0	0	AR00 Config	C-INT #0	1, C0000HWet-7	C-INT #0_1_1 (C0000HWet-7)	Digital	R	Cont			

7.2. Update the Firmware Version

You can check the firmware (software) version of the coupler on the **Comm Mode » Property tab of the coupler » FW Version** in the DAQMaster. To update the coupler's firmware, you need to select the **Comm Mode » Property tab of the coupler » System configuration**.



With Internet connection

1. Select the **Firmware update** to perform the update.

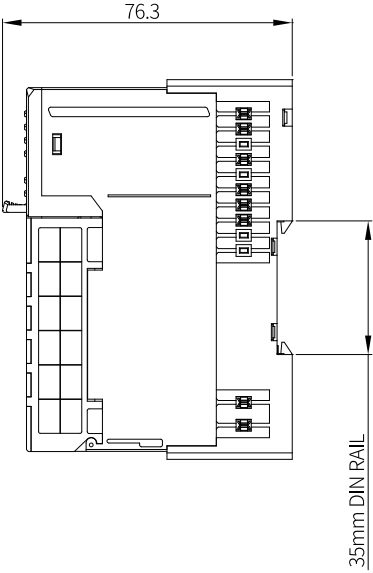
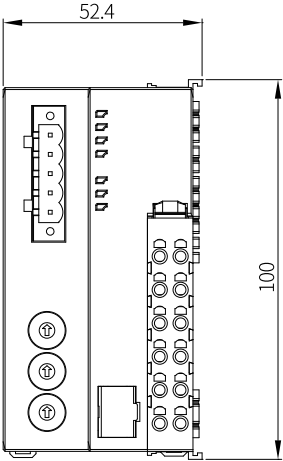
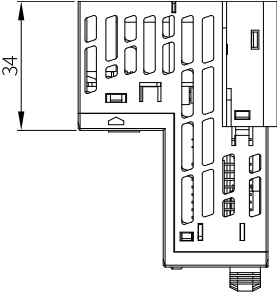
Without Internet connection

1. Download the latest firmware version of the coupler from the Autonics website.
2. Select the **Load firmware file** to import the downloaded .zip file.
3. Select the latest version of ARIO-C-CL at the **Firmware version list**.
4. Select the **Firmware update** to perform the update.

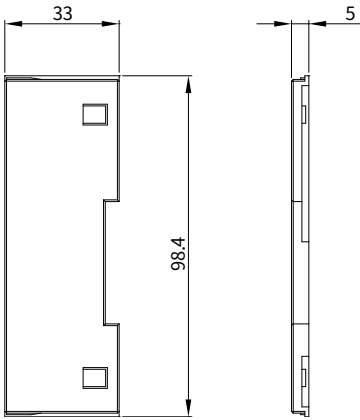
8. Dimensions

- For the detailed drawings, follow the Autonics website.
- Unit: mm

Coupler



End module



9. Specifications

9.1. Electrical/Mechanical Specifications

Max. number of connectable modules	≤ 32 (The length of connected modules: ≤ 384 mm)
Memory size	<ul style="list-style-type: none">• Input: 256-byte• Output: 256-byte
Power supply	<ul style="list-style-type: none">• Unit (coupler + module): ≤ 9.6 W, ≤ 400 mA (≤ 200 mA/CH, 2-CH/COM)• I/O: ≤ 96 W, ≤ 4,000 mA (≤ 2,000 mA/CH, 2-CH/COM)
Supply voltage	<ul style="list-style-type: none">• Coupler input voltage: 24 V_{DC}• ABUS supply voltage: 5 V_{DC}, ≤ 960 mA• I/O supply voltage: 24 V_{DC}
Current consumption	<ul style="list-style-type: none">• The standby and run mode: 200 mA• The maximum load: 400 mA (at coupler max. load)
Field network connection	5-pin PCB connector
DAQMaster connection	USB 2.0 type Micro B
Installation method	DIN rail mounting
Material	Terminal: PA6, Body: MPPO, Base: PA6, POM
Unit weight (packaged)	≈ 165 g (≈ 265 g)

9.2. Environmental Conditions

Insulation resistance	$\geq 100 \text{ M}\Omega$ (500 V_{DC} megger)
Dielectric strength	1000 V_{AC} 50/60 Hz for 1 minute
Noise immunity	500 V_{DC} the square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.7 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 minutes
Shock	300 m/s^2 ($\approx 30 \text{ G}$) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 ($\approx 10 \text{ G}$) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 55 $^{\circ}\text{C}$, storage: -25 to 70 $^{\circ}\text{C}$ (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection rating	IP20 (IEC standard)

10. Communication Specifications

10.1. CC-Link Communication

Comm. standard	CC-Link Ver 2.0
Station type	Remote device station (max. number of connected stations: ≤ 42 stations)
Transmission rate setting	DATARATE rotary switch X 1
Transmission rates	156 kbps / 625 kbps / 2.5 Mbps / 5 Mbps / 10 Mbps
Cable spec.	The cable approved by the CC-Link Partner Association (CLPA)
Cable length	<ul style="list-style-type: none">• 156 kbps: 1200 m• 625 kbps: 900 m• 2.5 Mbps: 400 m• 5 Mbps: 160 m• 10 Mbps: 100 m
Station number settings	Decimal rotary switches X 2
Station number	01 to 64
Occupied station	1 to 4 stations
Extended cyclic setting	1, 2, 4, 8 times
Interface type	RS-485
Topology	Bus, Trunk, Drop Line, Daisy Chain
CSP+ file	Download the CSP+ file on our Autonics website

10.2. ABUS

Transmission rate	4 Mbps
Topology	Bus, Drop Line

Autonics

Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

www.autonics.com