**MITSUBISHI ELECTRIC**
*Changes for the Better*

## PLC
# MELSEC iQ-R Series Basic

This course is for participants who will use the MELSEC iQ-R Series programmable controller for the first time.

L(NA)00166ENG

## Introduction — Purpose of the course

This course explains the basic structure and configuration method of programmable controllers for those who will use the MELSEC iQ-R Series programmable controllers (MELSEC iQ-R Series) for the first time.
Programmable controller system is generally configured in the following procedure:

1. Decide where to apply the automation system
2. Prepare the required equipment
3. Installation and wiring
4. Create various programs that execute the automated procedures

The following course is a prerequisite prior to taking this course:

1. FA Equipment for Beginners (PLCs)

The contents of this course are as follows.
It is recommended that you start from Chapter 1.

**Chapter 1 -** Designing the programmable controller system

Learn about the MELSEC iQ-R Series, programmable controller system example, and module selection

**Chapter 2 -** Installation and wiring

Learn about module installation, I/O number assignment, and wiring

**Chapter 3 -** Creating and executing programs

Learn about connecting the CPU module to a personal computer, and programming

**Final Test**

Pass grade:  60% or higher is required

## Introduction  How to use this e-Learning tool

| Go to the next page | ⏭ | Go to the next page. |
|---|---|---|
| Back to the previous page | ⏮ | Back to the previous page. |
| Move to the desired page | TOC | "Table of Contents" will be displayed, enabling you to navigate to the desired page. |
| Exit the learning | ✕ | Exit the learning. |

## Safety precautions

When you learn based on using actual products, please carefully read the safety precautions in the corresponding manuals.

## Precautions in this course

The displayed screens of the software version that you use may differ from those in this course.

This course is for the following software version:

- GX Works3 Version 1.001B

# Chapter 1 | Designing the programmable controller system

This chapter explains the programmable controller system configuration and module selection based on the MELSEC iQ-R Series.

# 1.1 MELSEC iQ-R Series concept

Mitsubishi programmable controllers, which are also referred to as programmable automation controllers (PAC), realize automation in various control situations or applications.

The MELSEC iQ-R Series models, which were released in 2014, are a new revolutionary, next-generation controller series building a new era in automation for medium to large-scale control systems. Designed from the ground up, the control system is based on common problems faced by customers.
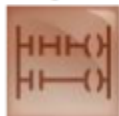
## Productivity

Improve productivity through advanced performance/ functionality

## Engineering

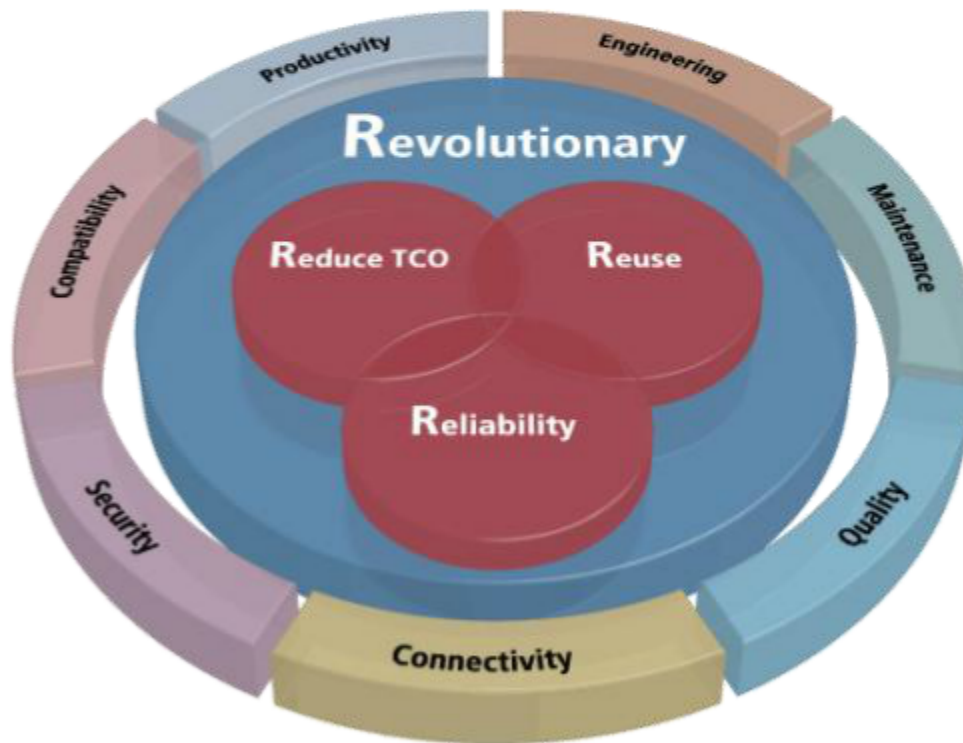Reducing development costs through intuitive engineering

## Maintenance

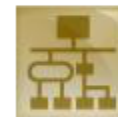Reduce maintenance costs and downtime utilizing easier maintenance features

## Quality

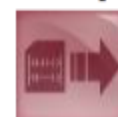Reliable and trusted MELSEC product quality

## Connectivity

Seamless network reduces system costs

## Security

Robust security that can be relied on

## Compatibility

Extensive compatibility with existing products

# 1.2 MELSEC iQ-R Series system configuration

This section explains about the basic MELSEC iQ-R Series system configuration.
The CPU module, main base unit, and power supply module are the three essential modules required to configure a control system.

Place the mouse cursor over a module to learn about its functions. (**Click** on the CPU module to switch to a multi-CPU system.)
After reading the functions of all the modules, click [▶] to proceed to the next page.
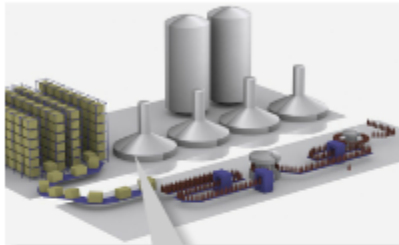
Multi-CPU system

■ **Extension base unit**
Extends the control system to up to seven levels.

# 1.3 Programmable controller system example

This section explains about the sorting process.

**Sorting process**

In this process, the number of incoming crates is counted.

When a crate passes in front of the sensor, the amount is incremented.

When the count is 1 to 3, crates are conveyed to line A.

When the count is 4 to 6, crates are conveyed to line B.

The proceeding 7th crate returns the guide-rails to line A.

Number of the crates that have passed

**7**

Sensor

Sorting process          Sorting process

End of animation.
Please click ▶ to proceed to the next page.

To view again, click on the "Replay" button.

Back to the production line overview          Replay

## 1.4 Modules for the example sorting system

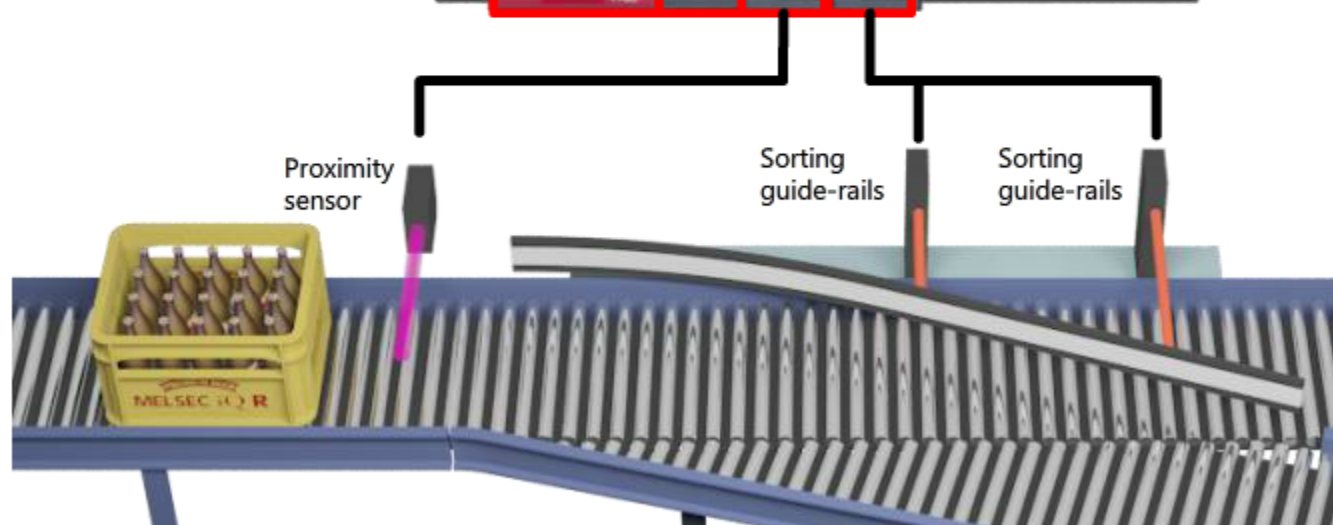In this example sorting system, various modules are used as shown below:

**CPU module**
Executes the control program based on digital input signals, which are then processed as digital output signals via the output modules

**Input module**
Receives digital signals from a sensor, and relays that information to the CPU module

**Output module**
Receives instructions from the CPU module, and relays digital output signals to the sorting guide-rails

**Power supply module**

**Base unit**

Proximity sensor

Sorting guide-rails

Sorting guide-rails

# 1.5    Module selection

The MELSEC iQ-R Series consists of a wide-range of modules that can be used for various automation applications. In the example sorting system, a digital I/O (Input and Output) module is used as the main interface to external digital signals.



Analog I/O

Motion control

MELSEC iQ-R Series

Digital I/O

Network

# 1.5.1 I/O module selection

The following points must be considered when selecting a suitable I/O module:

- How many I/O devices are required (Number of I/O points)
- Input/output voltage

The example sorting system consists of:

- One input device (proximity sensor)
- Two output devices (sorting guide-rails)
- Input/output voltage of 24 V DC

By considering the points above, the following I/O modules are selected:

| Module name | Rated input voltage | Number of input points |
|---|---|---|
| RX40C7 | 24 V DC | 16 points |

| Module name | Rated load voltage | Number of output points |
|---|---|---|
| RY40NT5P | 12 to 24 V DC | 16 points |

**RX40C7**　　　**RY40NT5P**

Sink type and source type output modules are available depending on the wiring system used.
With this example, the sink type output module was selected.
(The difference between the source type and sink type is explained in Chapter 2)

# 1.5.2 CPU module selection

The following points must be considered when selecting a suitable CPU module:

- Total number of I/O points required
- Program memory capacity

Programs are stored in the CPU module, therefore an adequate CPU module allowing for the program size should be considered. Generally a large program capacity is required for large-scale applications. In order to allow for any future additions to the control system, please select a module with a program capacity considering the extra memory requirements.

For this example, the following CPU module was selected:

| Module name | Number of I/O points | Program capacity |
| --- | --- | --- |
| R04CPU | 4096 points | 40K steps |

**R04CPU**

# 1.5.3 Base unit selection

The base unit is the main backplane to the system and holds the modules together as well as providing data communications via the system bus. The number of installable modules varies according to the capacity or slot-size of the base unit. Currently three different sizes are available, 5-, 8-, 12-slot type.

Once the control system size and required modules are decided, a suitable base unit allowing for the module I/O slot capacity is selected. In order to allow for any future additions, please select a base unit size considering the extra requirements.

For this example, the following base unit was selected:

**R35B**

| Module name | Number of slots |
|:-----------:|:---------------:|
| R35B | 5 |

# 1.5.4 Power supply module selection

When selecting a suitable power supply module, the required current consumption across the base unit has to be calculated as to provide an adequate power supply to the control system.
The concept of how power is consumed by each installed module on the base unit is shown below:

The capacity of the power supply module is depleted. Please consider the use of an extension base unit or to reduce the amount of currently installed modules.

End of animation.
Please click [▶|] to proceed to the next page.

To view again, click on the "Replay" button.

Replay

5%

# 1.5.4 Power supply module selection

The consumption current can automatically be calculated using two different methods:

- MELSEC iQ-R Series "Model Selection System"
- Via the programming software "GX Works3"

Confirming the power supply consumption using GX Works3

**Result of Power Supply Capacity and I/O Points Check**

| Base/Cable | Slot | Model Name | Consumption Current | Total Consumption Current | Total Drop Voltage | Total I/O Points |
|---|---|---|---|---|---|---|
| R35B | - | R35B | 0.58A | 1.5A / 6.5A | - | 80 Point / 4096 Point |
| | [Power Supply] | R61P | - | | | |
| | [CPU] | R04CPU | 0.67A | | | |
| | [0] | RX40C7 | 0.11A | | | |
| | [1] | RY40NT5P | 0.14A | | | |

**Total Consumption Current**

1.5A / 6.5A

Confirming the power supply consumption using the Model Selection System

**MELSEC iQ-R** Model Selection System Version 1.0.0

R35B
Select Main Base →

CPU | 0 | 1 | 2 | 3 | 4
00~ | 10~ | 20~ | 30~ | 40~
0F | 1F | 2F | 3F | 4F

R61P | R04CPU | RX40C7 | RY40NT5P

No. of occupied I/O points (excluding empty slots.)
32 / 4096 points

5 V DC current consumption
1.5A /6.5A

5 V DC current consumption

1.5A /6.5A

Please note, the Model Selection System can be obtained from your local Mitsubishi Electric or sales representative.

# 1.5.4   Power supply module selection

For the example sorting system, the total current supply required by the combination of the base unit, CPU module, input module, and output module is 1.5 A.

Therefore, the following power supply was selected:

| Module name | Input current | Rated output current |
|:-----------:|:-------------:|:--------------------:|
| R61P | 100...240 V AC | 6.5 A |

# 1.6   Summary

In this chapter, you have learned:

- MELSEC iQ-R Series concept
- MELSEC iQ-R Series system configuration
- Programmable controller system example
- Modules for the example sorting system
- Module selection

Important points to consider:

| | |
|---|---|
| Essential modules to configure a system | • CPU module<br>• Main base unit<br>• Power supply module |
| When selecting an I/O module | • Number of I/O devices<br>• Input/output voltage |
| When selecting a CPU module | • Total number of I/O points<br>• Program capacity |
| When selecting a base unit | • Number of required modules |
| When selecting a power supply module | • Total current consumption of each module used |

# Chapter 2 Installation and wiring

This chapter explains about both the module installation and methods used for wiring.

2.1 Installation environment

2.2 Connecting the CPU module internal battery

2.3 Module installation

2.4 I/O number assignment

2.5 Wiring

2.6 Summary

# 2.1    Installation environment

The MELSEC iQ-R Series is a programmable automation controller designed for using in industrial environments. In general, control systems are installed within a specialized control cabinet, which prevents an accumulation of dust particles and provides some level of protection against outside electrical noise interference. The order of installation is to fix the base unit first inside the control cabinet, and then to install each module as required to the base unit.

Installation in the following environments should be avoided:
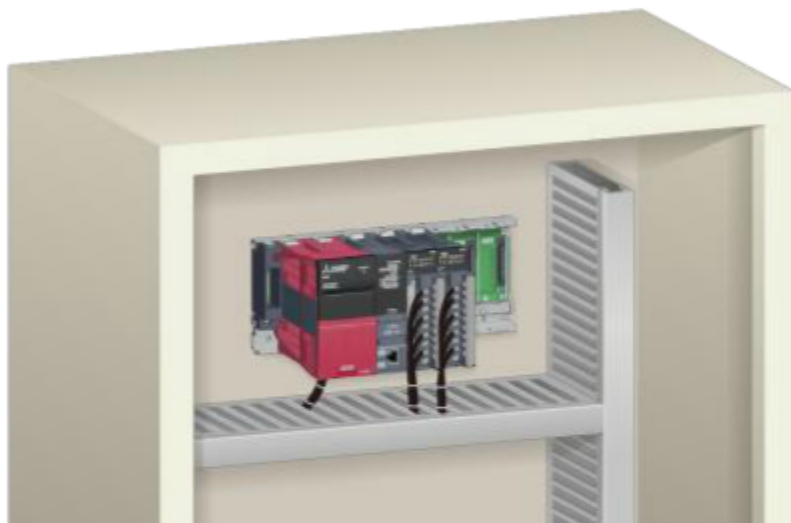
- High ambient temperature

- High ambient humidity, condensation

- Exposure to intermittent or continuous vibrations, or large-force impacts

- Air containing a high concentration of dust particles
- Presence of inflammable or corrosive gas*

For more details about supported installation environments, please refer to the general specifications in the relevant installation manuals.

*Some modules are available with a conformal coating according to IEC60721-3-3 Class 3C2. Please contact your local Mitsubishi Electric office or sales representative for further details.

# 2.2 Connecting the CPU module internal battery

The CPU module allows an internal battery to be connected as to ensure data retention in the event the main power supply is disconnected. When shipping, the internal battery is not connected as to conserve the battery power. Therefore, before using the CPU module, it is recommended that the internal battery is connected to the CPU module.

Please refer to the animation below showing the relevant steps of installation:

End of animation.
Please click ▶ to proceed to the next page.

To view again, click on the "Replay" button.

Replay

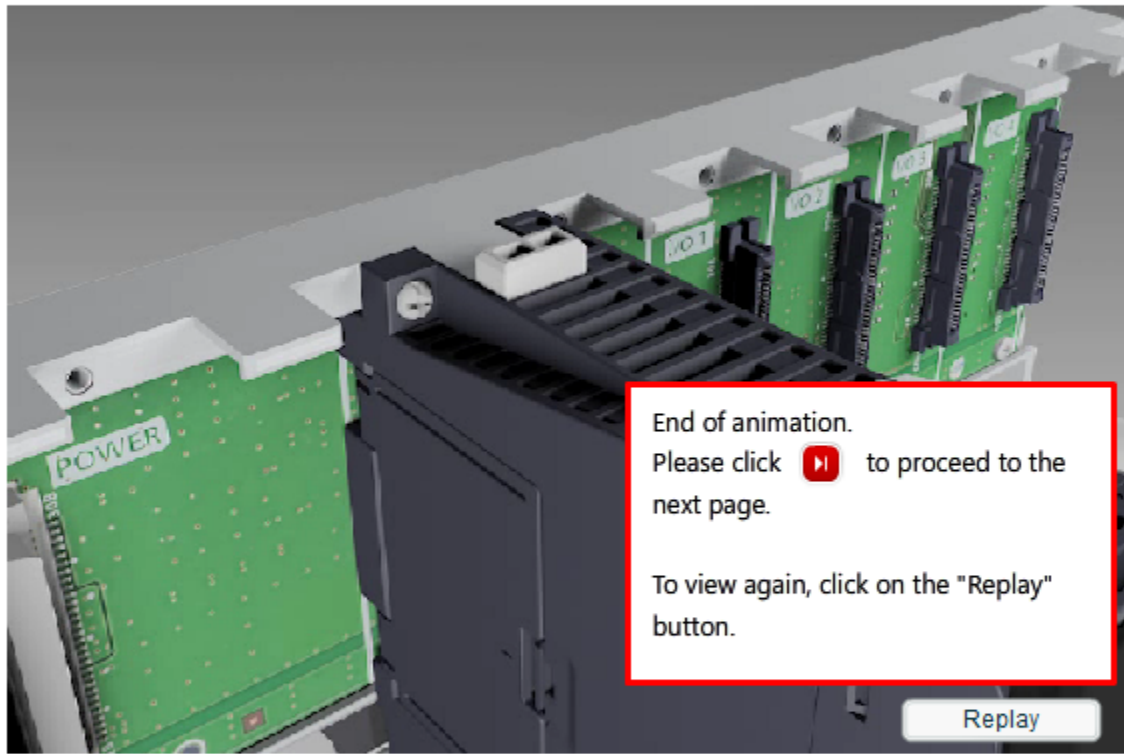1. Open the battery compartment cover located at the bottom of the CPU module

2. Remove the cover and connect the battery connector to the socket located inside the cover

3. Reattach the cover to the CPU housing and close the battery compartment cover

# 2.3 Module installation

The modules within the MELSEC iQ-R Series are installed onto the base unit as shown below.

End of animation.
Please click ▶| to proceed to the next page.

To view again, click on the "Replay" button.

Replay

1. Align the bottom of the module with the recess located on the base unit

2. Press onto the base unit bus connector until the top catch engages the module in place

3. Tighten the module fixing bolt to provide a sturdy installation on the base unit

## 2.3.1 Modules and various slots

Different types of slots are present on the base unit for the power supply module, CPU module, and I/O modules. CPU modules can also be installed onto the first 3 I/O slots in a multiple CPU control system.

Power supply slot

CPU slot

I/O slot
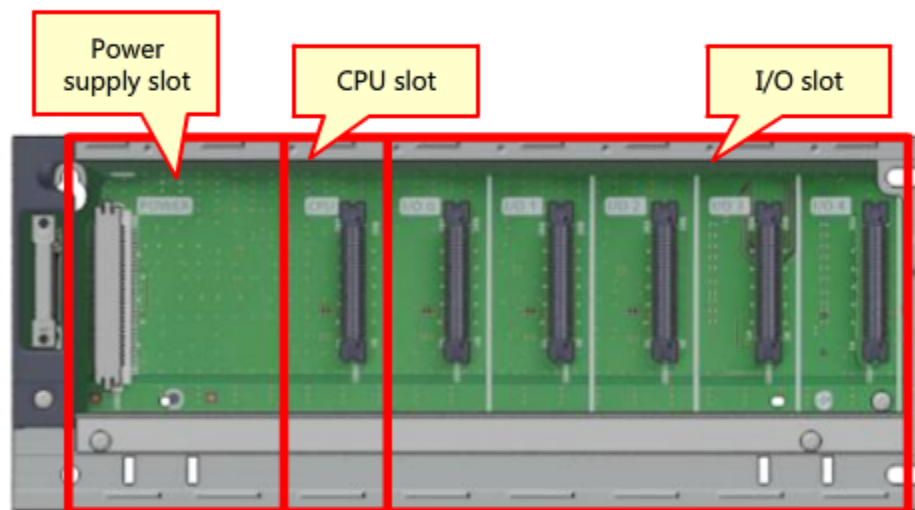
## 2.4 I/O number assignment

- When an I/O module (except a power supply and CPU module) is installed onto the base unit, an I/O address number is automatically assigned. This address is used to identify I/O signals within the I/O module from the CPU and is allocated 16 points by default. The I/O addressing usually starts from the left most module adjacent to the last CPU module on the right.
- I/O numbers are expressed in hexadecimal and start from 0.
- "X" is appended for an input module, and "Y" is appended for an output module.
- After assignment, the correspondence between the I/O number and external device interface should be confirmed

Input module
X0 to XF
(16 points)

Output module
Y10 to Y1F
(16 points)

X0

Y10        Y11

Line A

1-3x

Line B

4-6x
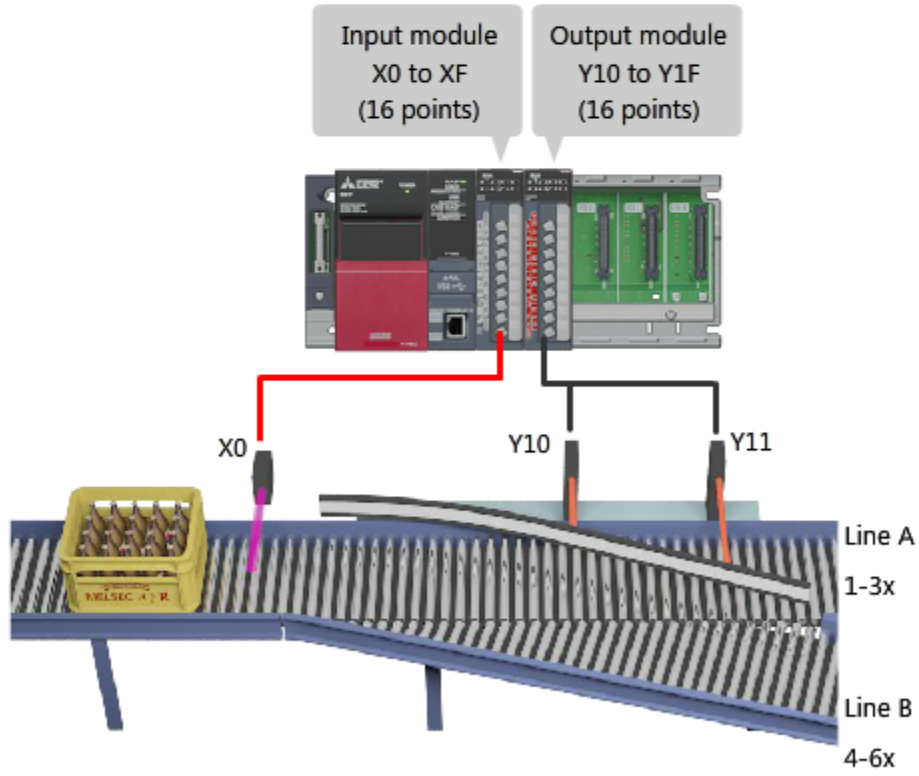
Correspondence between I/O numbers and external devices (example sorting system)

|  | I/O number | | External device |
|---|---|---|---|
| Input module | X0 to XF (16 points) | X0 | Proximity sensor, which turns ON upon detecting a crate |
| | | X1 to XF | Not used |
| Output module | Y10 to Y1F (16 points) | Y10 | Sorting guide-rail that pushes the crates to the other conveyor once activated (ON) |
| | | Y11 | |
| | | Y12 to Y1F | Not used |

## 2.5 Wiring

After attaching the modules to the base unit, the power supply and external devices must be wired.

## 2.5.1 Power supply module wiring

This section explains about wiring to the power supply module.

- For wiring, the terminal cover in front of the module must be opened.
- AC power is connected to the power supply terminals L and N, respectively. (The L and N terminals are clearly labeled) Take care not to connect the AC power cables to the ERR contact terminals.
- It is recommended that both the terminals FG and LG should be earthed accordingly.
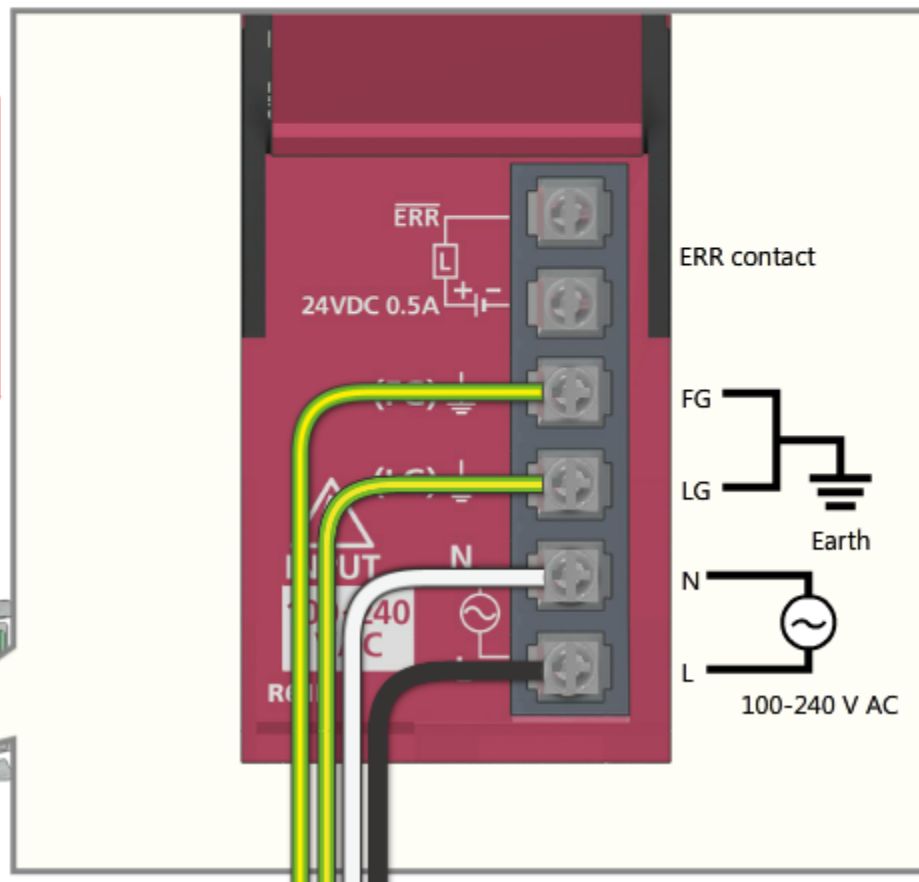
Color coding of AC mains wiring may vary according to the country used.

End of animation.
Please click ▶ to proceed to the next page.

To view again, click on the "Replay" button.

Replay

ERR

24VDC 0.5A
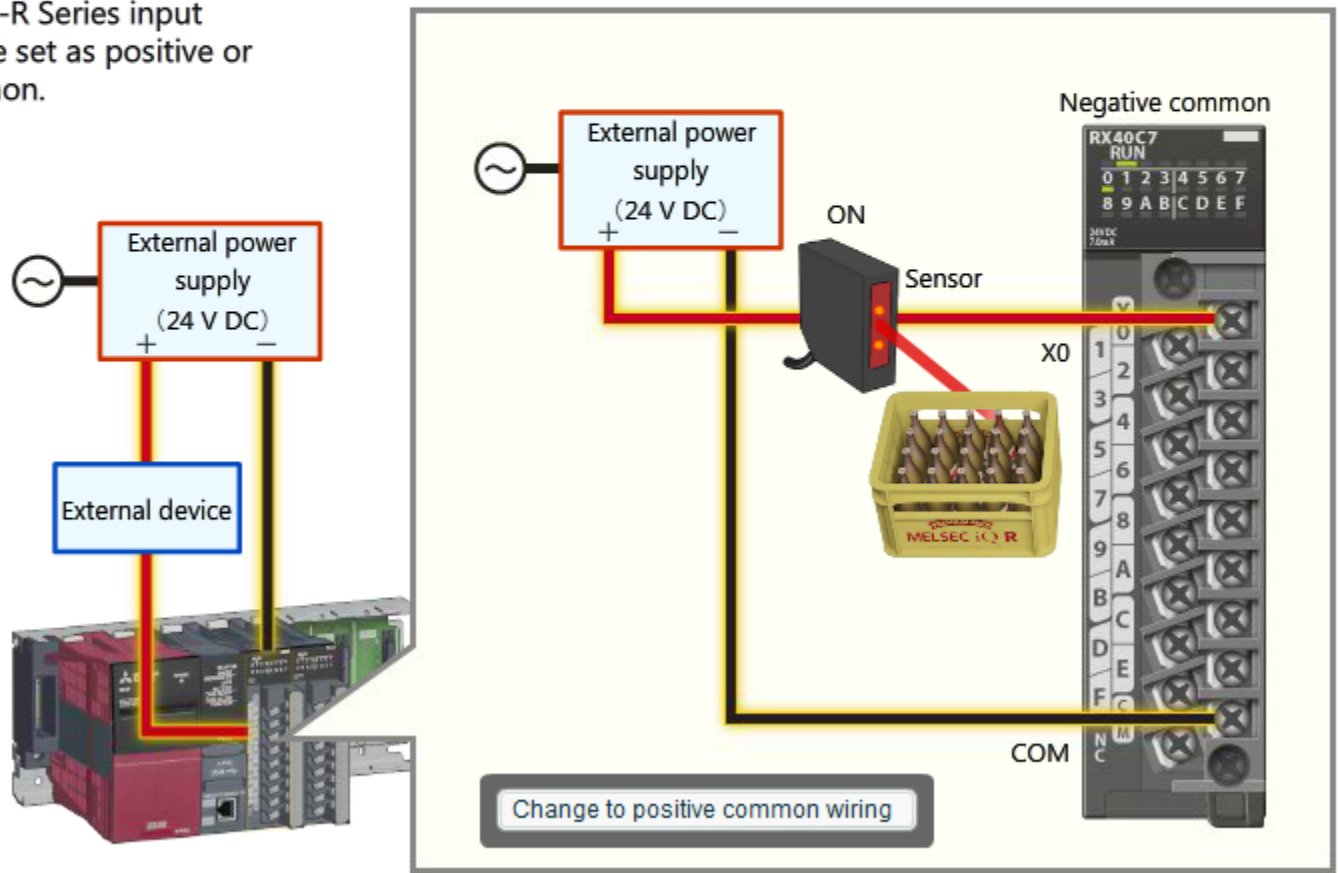
ERR contact

FG

LG

Earth

N

L

100-240 V AC

# 2.5.2 Input module wiring

An external power supply (24 V DC) is separately required in addition to the base unit power supply module. It has a single common terminal (COM), which can be wired as a positive (common positive rail is used) or negative (common negative rail is used) common. The different wiring types can be switched accordingly.

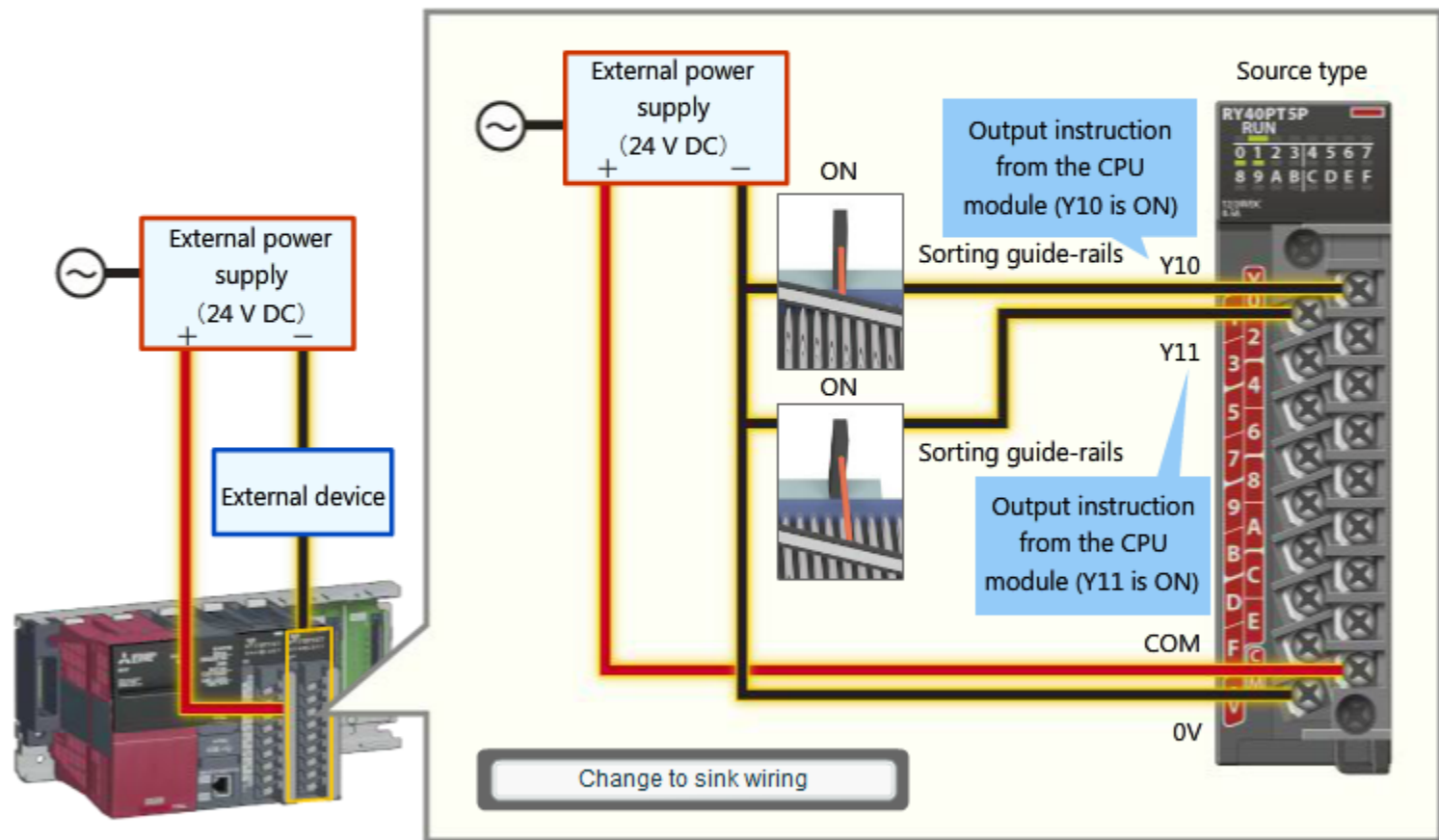The animation illustrates the wiring of the input module.

The MELSEC iQ-R Series input modules can be set as positive or negative common.

Negative common

External power supply
(24 V DC)

ON

Sensor

External power supply
(24 V DC)

RX40C7
RUN
0 1 2 3 4 5 6 7
8 9 A B C D E F

X0

External device

MELSEC iQ R

COM

Change to positive common wiring

Please click the button above to switch between positive and negative common wiring.
Please click ▶ to proceed to the next.

## 2.5.3 Output module wiring

There are two distinctive ways to wire the output module, depending on the external devices used. It has a single common terminal (COM), sink wiring when the negative rail is used, and source wiring when the positive rail is used as the common. Each wiring method requires a different type of module. The output module requires an external power supply, which should be connected to either the +V or 0V terminals accordingly.

External power supply
(24 V DC)
+  −

External power supply
(24 V DC)
+  −

External device

Source type

RY40PT5P
RUN
0 1 2 3 4 5 6 7
8 9 A B C D E F

Output instruction from the CPU module (Y10 is ON)

ON

Sorting guide-rails   Y10

Y11

ON

Sorting guide-rails

Output instruction from the CPU module (Y11 is ON)

COM

0V

**Change to sink wiring**

Click the button above to switch between sink and source wiring.
After confirming each wiring, please click ▶ to proceed to the next.

# 2.6 Summary

In this chapter, you have learned:

- Appropriate installation environment
- How to connect the CPU module internal battery
- Installation of various modules
- I/O number assignment method
- Various wiring methods

Important points to consider:

| | |
|---|---|
| Installation environment | The MELSEC iQ-R Series control system requires to be installed in an environment as outlined in the general specifications |
| Connecting the internal CPU battery | Before being installed to a base unit, the CPU module needs its battery connector to be plugged in |
| Module installation | • The power must be turned OFF before installing/removing a module<br>• Different types of slots are present on the base unit for the power supply module, CPU module, and I/O modules (CPU Modules can also be installed onto the first 3 I/O slots in a multiple CPU control system) |
| I/O number assignment | • I/O numbers are assigned to the modules installed in the base unit (except CPU and power supply modules)<br>• I/O numbers are assigned in increments of 16 points, and assigned from the left |
| Power supply module wiring | • The AC power supply is connected to the power input terminals L and N and not connected to the ERR contact<br>• Always earth the power supply module terminals FG and LG |
| I/O module wiring | • For I/O modules, an external power supply (24 V DC) is required in addition to the base unit power supply module<br>• An I/O module equipped with common terminals (COM), which can be used as input or output terminals, reduces wiring and space |

# Chapter 3 — Creating and executing programs

This chapter explains about creating and executing programs.

3.1 Programming outline

3.2 Connecting the CPU module to a personal computer

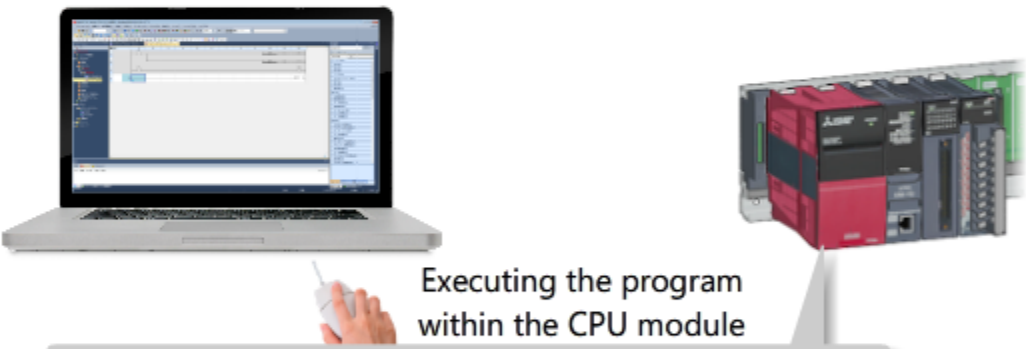3.3 Creating programs

3.4 Registering and executing programs
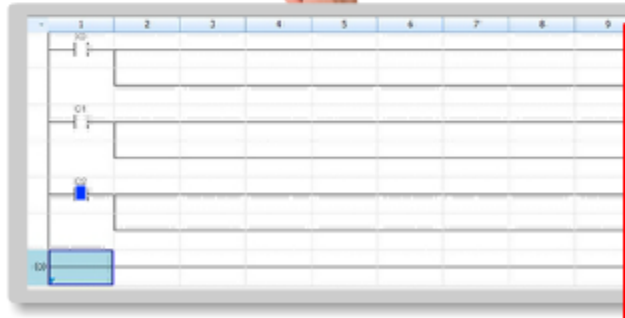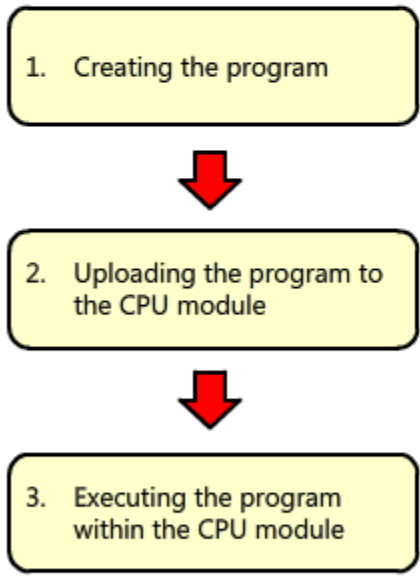
3.5 Summary

# 3.1 Programming outline

The MELSEC iQ-R Series programmable controller requires a program to execute control tasks within the system. The program consists of a dedicated programming language such as Ladder, Structured Text (ST), and/or function block (FB).

The program is created using a personal computer installed with GX Works3, which is a dedicated engineering software for the MELSEC iQ-R Series. Once the program is created it is then uploaded to the CPU module which in turn is executed in the control CPU. Programs can be easily modified as to align with future changes in the control system configuration or control method.

For this course, the ladder programming language is used to explain basic programming practices.

Executing the program within the CPU module

1. Creating the program

2. Uploading the program to the CPU module

3. Executing the program within the CPU module

End of animation.
Please click ▶ to proceed to the next page.

To view again, click on the "Replay" button.

[Replay]

# 3.2 Connecting the CPU module to a personal computer

Before uploading the newly created program, the CPU module has to be connected to the personal computer using GX Works3, as outlined below:



The CPU module is now connected to the personal computer and its initial setting is completed.

Click ▶ to proceed to the next page.

To replay, click the button below.

Replay

# 3.3 Creating programs

The example sorting system requires a control program in order to operate correctly. The correspondence between the control program and the operation of the external devices that are connected to the control system are shown below.

End of animation.
Please click ▶| to proceed to the next page.

To view again, click on the "Replay" button.

**Replay**

X0    Y10    Y11

Line A
1-3x

Line B
4-6x
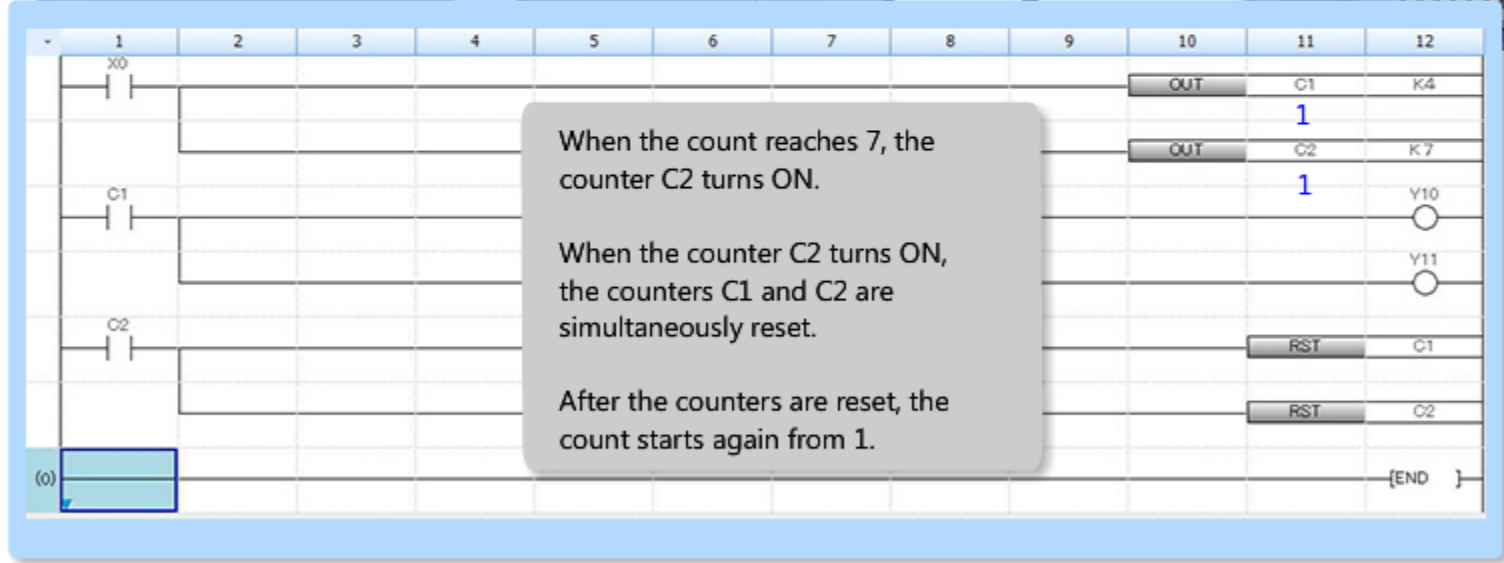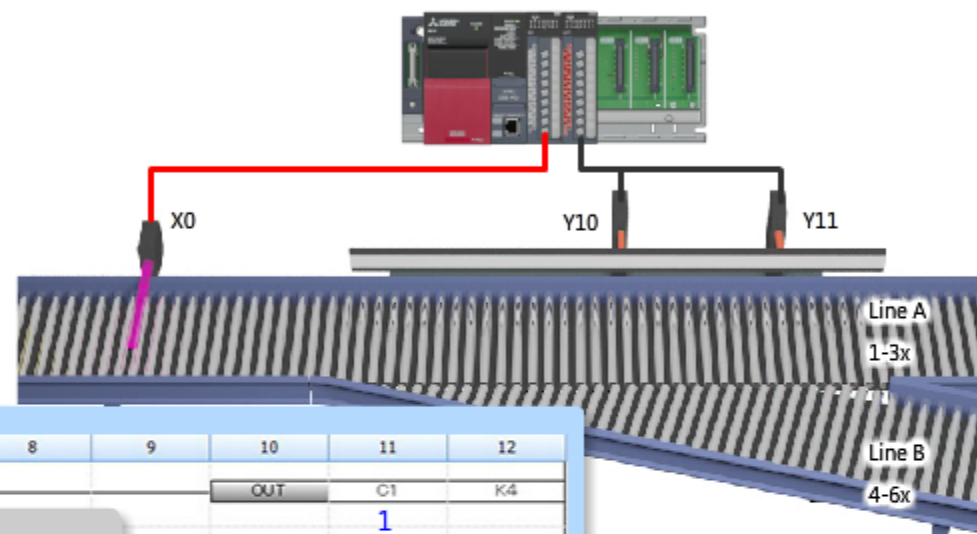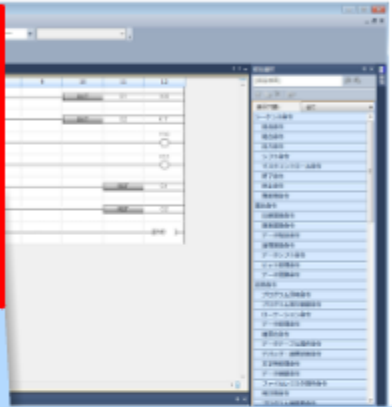
When the count reaches 7, the counter C2 turns ON.

When the counter C2 turns ON, the counters C1 and C2 are simultaneously reset.

After the counters are reset, the count starts again from 1.

Number of cases that have passed

**7**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|----|----|----|
| X0 | | | | | | | | | OUT | C1 | K4 |
| | | | | | | | | | | 1 | |
| | | | | | | | | | OUT | C2 | K7 |
| | | | | | | | | | | 1 | |
| C1 | | | | | | | | | | Y10 | |
| C2 | | | | | | | | | | Y11 | |
| | | | | | | | | | RST | C1 | |
| | | | | | | | | | RST | C2 | |
| (0) | | | | | | | | | | | [END] |

## 3.3 Creating programs

The following shows the necessary steps for creating the sorting system control program. The animation shows how simple it is to implement the control tasks into program form.

**MELSOFT GX Works3 (Untitled Project) - [ProgPou [PRG] [LD] 23Step]**

Project   Edit   Find/Replace   Convert   View   Online   Debug   Diagnostics   Tool   Window   Help

ProgPou [PRG] [LD] 23Step

| Write | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | X0 (0) Proximity sensor | | | | | | | | | OUT | C1 Counter | K4 |
| 2 | | | | | | | | | | OUT | C2 Counter | K7 |
| 3 | C1 (9) Counter | | | | | | | | | | Y10 | |

**Element Selection**

(Find POU)

Display Target:   All

| Output Instruction | |
|--------------------|---|
| DELTA[1] | Pulse conversion |
| DELTAP[1] | Pulse conversion |
| FF[1] | Bit device output |
| OUT[1] | Out instruction |
| OUT[2] | Timers / Retent |
| OUT[2] | Long timers / L |
| OUT[2] | Counter |

Output

The creation of a control program has now been completed.

Click ▶️ to proceed to the next page.

To replay, click the button below.   Replay

# 3.4 Registering and executing programs

For the MELSEC iQ-R Series programmable controller be able to control the sorting system, the control program has to be uploaded to the CPU module.
The necessary steps for this are as shown below:

| | | | |
|---|---|---|---|
| Global Label Initial Value | ☐ | | |
| GLBLINF | | 2014/09/05 9:46:43 | Not Calculation |
| Local Label Initial Value | | | |
| MAIN | | 2014/09/05 9:46:28 | Not Calculation |
| Program | | | |
| MAIN | | 2014/09/05 9:46:28 | Not Calculation |
| Device Memory | | | |
| MAIN | | 2014/09/05 9:46:26 | – |
| File Register | | | |

Display Memory Capacity

**Memory Capacity**

Size Calculation

**Legend**
- Used
- Increased
- Decreased
- 5% or Less

Program Memory

Data Memory

Device/Label Memory (

SD Memory Card

**Write to PLC**

5/5

100/100%

System Parameter: Writing Completed
CPU Parameter: Writing Completed
Module Parameter: Writing Completed
Local Label Initial Value(MAIN): Writing Completed
Program File(MAIN): Writing Completed
Write to PLC : End

☐ When processing ends, close this window aut

Close

Free
160/160KB

Free

Program upload and execution are now completed.

Click ▶ to proceed to the next.

To replay, click the button below.

Replay

# 3.4 Registering and executing programs

For the MELSEC iQ-R Series programmable controller be able to control the sorting system, the control program has to be uploaded to the CPU module.
The necessary steps for this are as shown below:

Resetting the CPU module

↓

Executing control programs

↓

Stopping the execution of the program
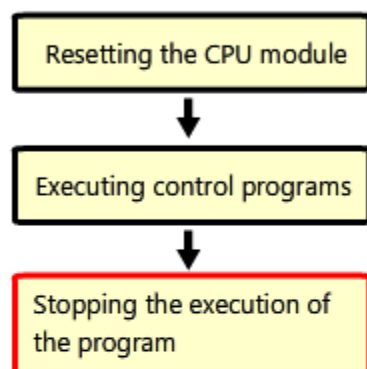
**Stopping the execution of the program**

P RUN LED turns off, and the execution of the control programs stops.

READY
ERROR
P RUN
USER
BAT
C RDY
C ACS
FUNC

SD CARD
OFF

RESET   RUN
STOP

## 3.5 Operation of the sorting system

The overall operation of the example sorting system is outlined below. It is also possible to change the amount of crates that are sorted and to see how the control program changes.

End of animation.

To view the animation again with a different number of conveyed cases, click on the "Replay" button shown below.

**Replay**

Click ▶ to proceed to the next page.

X0

Y10

Y11

Line A
1-2

Line B
3-4
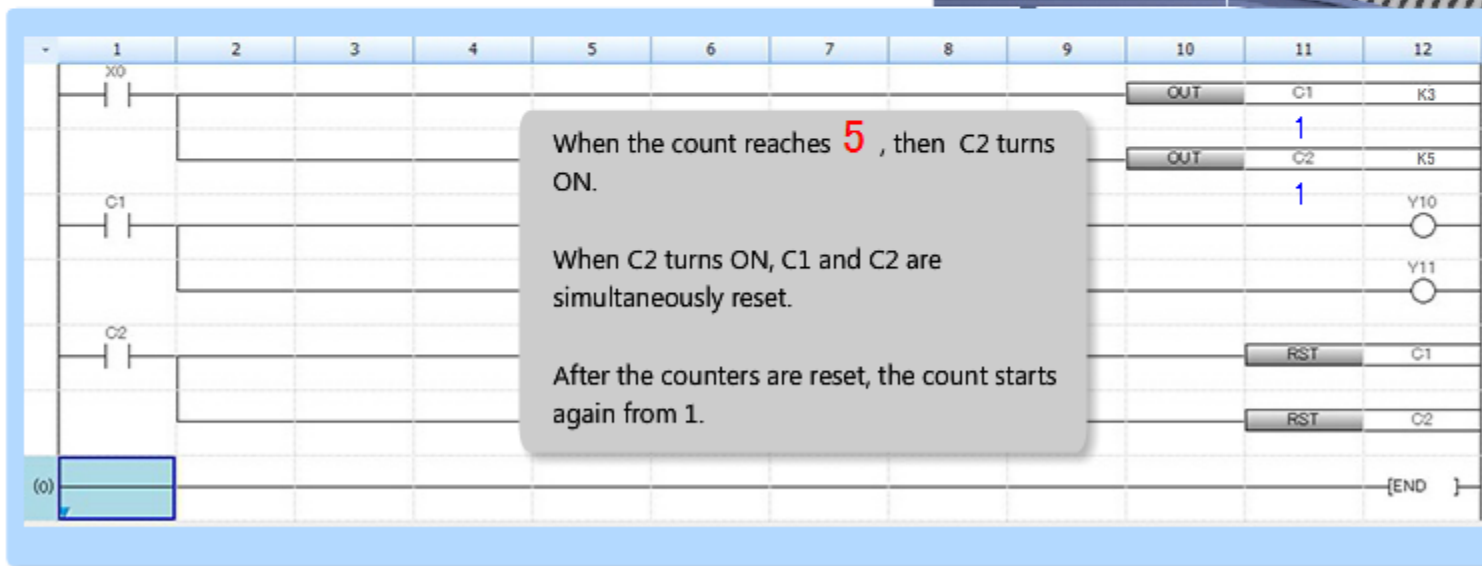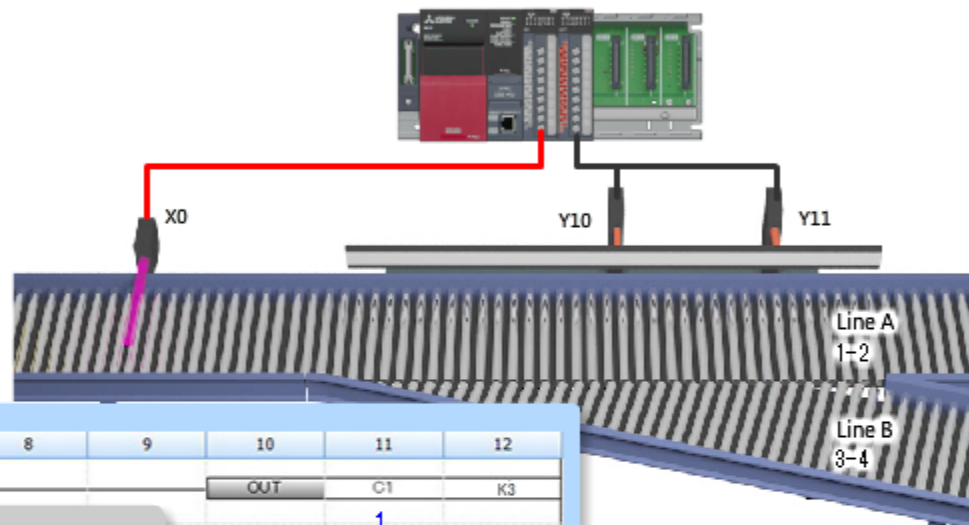
When the count reaches **5** , then C2 turns ON.

When C2 turns ON, C1 and C2 are simultaneously reset.

After the counters are reset, the count starts again from 1.

Number of crates that have passed

**5**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|

X0 — OUT C1 K3 (1)
— OUT C2 K5 (1)

C1 — Y10
— Y11

C2 — RST C1
— RST C2

(0) — {END}

# 3.6 Summary

In this chapter, you have learned:

- The general outline for programming
- How to connect the CPU module to a personal computer
- Creating control programs
- Uploading the control program to the CPU module

Important points to consider:

| Programming outline | 1. Creating programs for the control system<br>2. Uploading the control program to the CPU module<br>3. Executing the program |
|---|---|
| Formatting the CPU module memory | It is recommended to format the CPU module memory prior to using it for the first time |
| Creating programs | The control program is created using GX Works3 programming software |
| Resetting the CPU module | Once the program has been uploaded to the CPU module, a hardware reset need to be initiated on the CPU module |
| Executing programs | The program stored inside the CPU module will start executing once the CPU module operating switch has been set to "RUN" |

# Test | Final Test

Now that you have completed all of the lessons of the MELSEC iQ-R Series Basic course, you are ready to take the final test. If you are unclear on any of the topics covered, please take this opportunity to review those topics.
There are a total of 5 questions (7 items) in this Final Test.
You can take the final test as many times as you like.

## How to score the test

After selecting the answer, make sure to click the **Answer** button. Your answer will be lost if you proceed without clicking the Answer button. (Regarded as unanswered question.)

## Score results

The number of correct answers, the number of questions, the percentage of correct answers, and the pass/fail result will appear on the score page.

Correct Answers :     2

Total Questions :     9

To pass the test, you have to answer **60%** of the questions correct.

Percentage :     22%

| Proceed | Review | Retry |

- Click the **Proceed** button to exit the test.
- Click the **Review** button to review the test. (Correct answer check)
- Click the **Retry** button to retake the test again.

# Test — Final Test 1

Module types
Please select the modules essential to configure a programmable controller system. (multiple answers)

- ☐ Input module
- ☐ CPU module
- ☐ Power supply module
- ☐ Extension base unit
- ☐ Output module
- ☐ Main base unit

[ Answer ]  [ Back ]

# Test    Final Test 2

## Module selection
What needs to be considered when selecting a module? Please select an answer for each module.

Base unit      ▼

CPU module      ▼

Power supply module      ▼


A. Program capacity
B. Number of required modules
C. Total consumption current of the required modules


| Answer | Back |
|--------|------|

# Test | Final Test 3

Please select the correct description about the programmable controllers.

○ Programmable controllers have a robust design and can be installed in any environment.

○ Programmable controllers can operate correctly when they are installed in environments as described in the hardware specifications.

| Answer | Back |

Power supply module wiring
Please select the correct description about the power supply module wiring.

○ The two grounding terminals of the power supply module must always be grounded.

○ It is enough to ground one of the two grounding terminals of the power supply module.

| Answer | Back |

## Test  Final Test 5

**Program execution procedure**
**Please select the appropriate order of procedures from program creation to execution.**

○ ABDC

○ DACB

○ BCAD

A. Upload the control program to the CPU module
B. Toggle the CPU module switch to "RUN"
C. Reset the CPU module
D. Format the CPU module memory

Answer     Back

# Test : Test Score

You have completed the Final Test. You results area as follows.
To end the Final Test, proceed to the next page.

Correct answers :    0

Total questions :    5

Percentage :    0%

| Proceed | Review | Retry |
|---------|--------|-------|

You failed the test.

You have completed the MELSEC iQ-R Series Basic Course.

Thank you for taking this course.

We hope you enjoyed the lessons and the information you acquired in this course will be useful in the future.

You can review the course as many times as you want.

Review        Close