1. Installation

1-1 Connections and Wiring
1. Connect the Sensor to the Touch Finder or Computer via the Ethernet Cable.

2. Connect the I/O Cable to the Sensor.

The I/O Cable includes lines for power supply and I/O. Connect the required lines, as follows:

- **IO Signal**: Detects measurement triggers when ON is OFF.
- **IO Output**: Indicates processor status.

2-1 Switch to Setup Mode

Press the [ ] Button and then press [Sensor settings].

2-2 Image Setup

Make sure the image is stable and adjust the brightness and image input timing.

Focus the image.

Press [Camera setup].

The camera image will display.

If more than one Sensor is connected, a display will appear to select the Sensor to be set. Select the Sensor.

The following initial display will appear when the Sensor is selected.

2-3 Adjust the brightness.

The FQ-CR2 Sensor will automatically adjust the brightness according to the measurement object. If the resulting brightness is not suitable, adjust the shutter speed manually.

Press [ ] and then [Shutter speed].

Adjust the shutter speed with the slider at the bottom of the screen.

You can also touch [AUTO] to automatically set the shutter speed and gain according to the image.

3. Operation

- **1** Check the mounting position.
- **2** Attach the Mounting Bracket to the Sensor and mount the Sensor at the correct position.

1-2 Mounting

Check the mounting position. Use the optional charts in the included Instruction Manual and check the installation distance to be sure it is suitable for the field of view to be measured.

Install the PC Tool

To use the PC Tool, download the PC Tool and install the PC Tool on your computer.

Use the following network settings on your computer if you connect the computer directly to the Sensor:

- **IP address**: 10.5.5.101
- **Subnet mask**: 255.255.255.0

Example 1

Here, measurements are performed when the trigger signal is input. If the overall judgement is output, the trigger signal is not output. If the TRIG signal is received while the BUSY signal is ON, turn ON the TRIG signal while the BUSY signal is OFF.

Example 2

Here, a process switching signal is input from an external device to switch the scene.

Flow of Operation

The following steps are required to prepare the FQ-CR2 Sensor for operation.

1. Connections and Wiring
2. Mounting
3. Starting the Sensor

1-3 Starting the Sensor

1. Power ON the Sensor.

Power ON the Touch Finder. Turn on the power switch on the side of the Touch Finder.

Make sure that the version of Touch Finder or PC Tool setup software is 1.3 or higher.

2. Select the language to display on the Touch Finder.

3. Select the Sensor.

The following initial display will appear when the Sensor is selected.

1. Image Setup
2. Measurement Settings
3. Saving Settings

2-1 Switch to Setup Mode

Press the [ ] Button and then press [Sensor settings].

2-2 Image Setup

Make sure the image is stable and adjust the brightness and image input timing.

Focus the image.

Press [Camera setup].

If more than one Sensor is connected, a display will appear to select the Sensor to be set. Select the Sensor.

The following initial display will appear when the Sensor is selected.

The camera image will display.

The higher the value, the better the focus.

Use the focus adjustment screw on the top of the Sensor to focus the image.

Focus adjustment unit.

Example 1

Here, measurements are performed when the trigger signal is input. If the overall judgement is output, the trigger signal is not output. If the TRIG signal is received while the BUSY signal is ON, turn ON the TRIG signal while the BUSY signal is OFF.

Example 2

Here, a process switching signal is input from an external device to switch the scene.

Flow of Operation

The following steps are required to prepare the FQ-CR2 Sensor for operation.
3 Adjust the image input timing.
Adjust the delay from when the trigger is input until the image is input.
Press [Trigger setup].
Press [Trigger delay].

After the TRIG signal is input, images will be continuously input.

4 Filter Setup
The filter can be set to filter the captured image so that it is suitable for scanning.
Smooth, Dilate, Erosion, or Median can be specified for the filter.
Normally, the filter does not need to be set.
Refer to the User’s Manual for details.

2-3 Measurement Settings

1 Select the inspection items.
Press [Inspector], Next, touch [Inspection].

Touch (2D-code) - [Modify].

2 Set the 2D-code scanning conditions.
Press [Teach].

Make sure that the 2D-code is inside the green frame and touch [TEACH].
To change the inspection region, touch [Edit] or [Regen].

If scanning is successful, the 2D-code type and detected text string appear.

Press [Back].
If scanning failed, check the condition of the work and the lighting conditions, and repeat TEACH.

3 Select retry settings.
At one measurement trigger, this feature repeats scanning until the entire code is successfully read.
Retry has four run modes: Normal retry, Exposure retry, Scene retry, and Trigger retry.

Touch (Setup Mode) - [Sensor settings] - [Retry details] - [Retry mode], and select the retry run mode,

If you selected [Normal retry] or [Exposure retry], touch [Inspect] - [Retry details] and set the parameters.

2-4 I/O Settings
Configure these settings if the 2D-code measurement data (Judgement, Num. of char., Cell Recog., Rate, Contrast, and Focus) and scanned text string are to be output by Ethernet.

Touch (Setup Mode) - [I/O settings] - [Ethernet].

Configure the output settings for the measurement data (Judgement, Num. of char., Cell Recog., Rate, Contrast, and Focus) in [Output data set].
Configure the output settings for the scanned text string in [Output character set].

Refer to the User’s Manual for details.

3 Testing
Tests are made with some samples to see if correct measurements are possible.
When Test Mode is entered, images are measured continuously. A trigger input is not required. Measurement results are only displayed. They are not output to an external device.

1 Perform tests.
Press [Test]. Then press [Continuous test].

Press [Graphics+Details].

Continuous measurements will be performed, input images of some samples to see if the judgements are correct.

4 Operation

1 Switch to the Run Mode display.
Press [Run]. Then press [Switch to Run mode].

2 Save the settings.
Press [Yes].

All data will be saved before switching to Run Mode.

3 Execute measurements.
Measurements will be executed according to the trigger signal input. And the result of measurement will be output to an external device.

Menu Structure

[Image] Tab Page
Adjust images to the best input status.

[Inspector] Tab Page
Select the 2D-code scanning conditions and retry condition.

[Setup] Tab Page
Set the 2D-code scanning conditions and retry condition.

[Inspect] Tab Page
Set the 2D-code scanning conditions and retry condition.

[Teach] Tab Page
Test and adjust the set inspections.

Note
- To return to the Setup display, press the [F5] button and then press [Sensor settings].
- To switch to another Sensor, press the [F5] button and then press [Setup screen].

There are 16 types of displays that can be used, as shown below. Press the [F5] button and then press [Setup display] to display the following selections.

Graphic
- Displaying the Most Recent Measurement's Values
- Displaying the Most Recent Measurement's Values Over Time

Graph Chart
- Displaying Measurement Values Over Time
- Displaying Measurement Values Over Time

Graph Monitor
- Displaying Measurement Values Over Time
- Displaying Measurement Values Over Time

Statistical Data
- Measurement values
- Statistical analysis for current reading

Log setting
- Set the log setting

I/O setting
- Set the I/O setting

I/O monitor
- Display the I/O monitor