**System Overview**

**Flow of Operation**

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

2. Settings
   - 2-1 Image Setup
   - 2-2 Adjusting the brightness

3. I/O Cable Setup
   - 3-1 Inputs
   - 3-2 Outputs

**Box Contents**

- Product
- Model number
- Remarks
- FQ2-CH1
- FQ Ethernet Cable
- I/O Cable

**Multiple Connections**

- When one unit is connected (control by parallel input/output)
- When one unit is connected (control by Ethernet)

**Flow of Operation**

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

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

2. Settings
   - 2. Setting the Sensor

3. I/O Cable Setup
   - 3. I/O Cable Setup
   - 3. Input
   - 3. Output

**Flow of Operation**

1. Connections and Wiring
   - 1. Connections and Wiring

2. Mounting
   - 2. Mounting

3. Starting the Sensor
   - 3. Starting the Sensor

**Example 1**

- Here, measurements are performed when the trigger signal is input and the overall judgement is output.

**Example 2**

- Here, a process switching signal is input from an external device to switch the scene.
Adjust the image.
Adjust the image that is taken by the Sensor to make it easy to measure. Here, the position is corrected by searching to enable measurements even if the position of the measurement object is not consistent.

Press [Image adjustment].

Place the object that is to be used as the measurement reference in front of the camera. Move the rectangle so that the characteristic part and reference position for position compensation will be registered.

Press [OK].

You can add filter items to adjust the image to make it easier to measure. Refer to the User’s Manual for details.

2-2 Measurement Settings
Select items for the desired measurement and register an image as the reference for the measurement.

Select the inspection items.
Example: Registering Optical Character Recognition as the Measurement Method
Press [Inspect] -> [Inspection], press an unused item number, and then press [Add item] -> [OCR].

Register the measurement reference.
Specify the format of the characters to read (number of characters, alphabet, or symbols), etc. and specify the measurement region. Detailed parameters to recognize the characters will be set automatically.

Press [TEACH].
Place the object that is to be used as the measurement reference in front of the camera. Move the rectangle to the location to be measured, and then press the [OK] Button.

Check the area, press the [OK] Button, and then press the [TEACH] Button. The characteristic part and reference position for position compensation will be registered.

Press [OK].

If necessary, change the character format. Refer to the User’s Manual for details on the character format.

After you have confirmed the character format, press the [OK] Button.

The best judgement parameters will be set automatically according to the specified character format.

Press [OK] to register the read result in the master data.
Press [Back] to end teaching.

Adjust the judgement parameters.
Make the settings to check whether the characters that were read from the workpiece were recognized correctly.
Press [Judgement].
Adjust the judgement parameters while inputting images of several sample objects. Press the judgement condition parameter to adjust and set the upper and lower limits for an OK judgement.

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

4-1 Operation
Make settings to output measurement results.
The inspection results are output on the measurement values screen. Measurement values and the character format will be displayed at the top of the display.

Press [Yes] to register the read result in the master data.
Press [Back] to end teaching.

3-3 I/O Settings
The data that is output to external devices and the input signal assignments can be changed. (Changes are not normally required.) For example, the following can be input or output.
– Judgements for individual inspection items can be output.
– Commands to register models can be input from an external device.
– If you want to output data externally 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].

Menu Structure

2. Set the verification conditions.
You can set these parameters to verify that the character string that was read matches a specific character string in the master data.

You can register up to 32 character strings in the master data with the following menu commands.

– [Auto]: Reads a character string from an image and registers it in the master data.
– [Manual]: Registers a character string that is entered directly in the master data.
– [Item ref.]: Specified to use the immediately preceding read result as the verification character string.

Refer to the User’s Manual for details on the verification conditions.

2-3 I/O Settings
The inspections that were set on the Setup Display are used to perform measurements.