1. Outline

A 100Ω expansion adapter is made for the resistance temperature detector temperature sensor input (hereafter called PT-ADP) in an expansion adapter for connecting a resistance temperature detector (PT100, Ni100) in type temperature sensor and measuring a value to within ±0.8°C when the PT-ADP is connected to a CPU module. In a setup that satisfies this specification, the product is shipped together with the PT-ADP. When using the product, refer to the following manual.

2. Installation

1) Wiring type

- Use wire supplied with the PT100/PT1000 or a stranded wire with suitable wire size (AWG22 to AWG20).

2) Grounding

Connect the expansion board and expansion adapter securely to their designated terminals.

3) Interference noise

Connect the expansion board and expansion adapter securely to their designated terminals.

4) Shield connection

Connect the expansion board and expansion adapter securely to their designated terminals.

3. Wiring Precautions

Wiring type

- Use wire supplied with the PT100/PT1000 or a stranded wire with suitable wire size (AWG22 to AWG20).

2) Grounding

Connect the expansion board and expansion adapter securely to their designated terminals.

3) Interference noise

Connect the expansion board and expansion adapter securely to their designated terminals.

4) Shield connection

Connect the expansion board and expansion adapter securely to their designated terminals.

4. Specifications

4.1 Applicable CPU Module

The product's specifications are as follows:

- **Model**: FX5-4AD-PT-ADP
- **Current**: DC 5 V, 10 mA
- **Power Supply**: DC 5 V, 20 mA
- **Temperature Range**:
  - Input: -200°C to 850°C
  - Output: -200°C to 850°C
- **Resolution**: 0.1°C
- **Accuracy**: ±0.8°C
- **Input Impedance**: 100 kΩ
- **Output Impedance**: 50 kΩ
- **Input Voltage**: 5 V (±0.5 V)
- **Output Voltage**: 4-20 mA
- **Number of Analog Inputs**: 4
- **Number of Analog Outputs**: 4
- **Operation Method**: 16-bit signed binary
- **Communication**: MODBUS-RTU

5. Power Supply

The product's specifications are as follows:

- **Input**: DC 5 V, 20 mA
- **Output**: 4-20 mA
- **Power Supply**: Built-in power supply
- **Input Voltage**: 5 V (±0.5 V)
- **Output Voltage**: 4-20 mA
- **Number of Analog Inputs**: 4
- **Number of Analog Outputs**: 4
- **Operation Method**: 16-bit signed binary

6. Performance

The product's specifications are as follows:

- **Number of Analog Input Channels**: 4
- **Number of Analog Output Channels**: 4
- **Temperature Range**: -200°C to 850°C
- **Resolution**: 0.1°C
- **Accuracy**: ±0.8°C
- **Input Impedance**: 100 kΩ
- **Output Impedance**: 50 kΩ
- **Input Voltage**: 5 V (±0.5 V)
- **Output Voltage**: 4-20 mA
- **Communication**: MODBUS-RTU

7. Warranty

The product is covered by the Mitsubishi Electric Corporation's warranty for commercial products. The warranty covers defects in materials and workmanship for a period of 12 months from the date of delivery. The warranty does not cover damage caused by misuse, abuse, or unauthorized modifications. For more information, please refer to the warranty manual provided with the product.
3.2.2 Precautions on resistance temperature detector wiring

1. Wiring

- Do not drop the product or exert strong impact to it.
- Do not touch the conductive parts of the product directly.
- Ensure that the product is not exposed to corrosive gas (salt air, Cl₂, H₂S, SO₂ or NO₂), flammable gas, vibration or corrosive media.
- The product should be used only in conditions specified in this manual. Failure to do so may cause electric shock or damage to the product.
- Use the wire supplied together with Pt100/Ni100 or a shielded twisted wire when wiring the Pt100/Ni100 resistance temperature detector.
- Do not use common grounding with heavy electrical systems.
- Be sure to use the shield such as shielded cables and shielding covers to the grounded terminal block.
- Do not twist the ends of stranded wires and make sure that there are no loose strands or cuts on the ends of the wires.
- Use stranded wire of 0.3 to 0.5 mm² cross-sectional area. Use stranded wire of 0.4 mm in diameter for the Pt100/Ni100 resistance temperature detector.

2) Grounding

- The control cabinet should be connected to the PLC, and the cabinet should be grounded.
- Connect the cabinet and its doors with thick wires.
- Use the wire supplied together with Pt100/Ni100 or a shielded twisted wire when wiring the Pt100/Ni100 resistance temperature detector.
- Use the wire supplied together with Pt100/Ni100 or a shielded twisted wire when wiring the Pt100/Ni100 resistance temperature detector.
- Use shielded twisted wire of 0.3 to 0.5 mm² cross-sectional area when wiring the Pt100/Ni100 resistance temperature detector.

3) Wiring in Enclosure

- When wiring in enclosed cabinets, ensure that the cabinet has minimal openings. Wrap the cable holes with a shielding cover or connect the cabinet and its doors with thick wires.
- It is recommended to connect the shield at one point to the cabinet ground.
- For general precautions, refer to the following manual:
  - MELSEC iQ-F FX5U User’s Manual (Hardware)
  - MELSEC iQ-F FX5U User’s Manual (Analog Control)

4. Specifications

4.1 Applicable CPU Module

- Terminal blocks are not available for the CPU module.
- Dimensions of the CPU module are as follows:
  - MELSEC iQ-F FX5U User’s Manual (Hardware)
  - MELSEC iQ-F FX5U User’s Manual (Analog Control)

4.2 General Specifications

- The items other than the following are identical to those of the CPU modules.
- For general specifications, refer to the following manual:
  - MELSEC iQ-F FX5U User’s Manual (Hardware)
  - MELSEC iQ-F FX5U User’s Manual (Analog Control)

4.3 Power Supply

- Internal electric supply (AC24V): 80 mA ± 20% for one module
- Internal electric supply (DC24V): 30 mA ± 20% for one module
- Internal electric supply (DC5V): 30 mA ± 20% for two 3V DC power supply units

5. Wiring

5.1 General

- The product shall be connected to the PLC, and all grounding points should be grounded as described above.
- Do not damage the product or expose it to high temperature, condensation, or rain and wind.
- Do not disassemble the product, the PLC shall not be repaired or modified.
- Do not repair or modify the product.

6. Performance

6.1 Specifications

- The specifications are given in nominal values, not guaranteed values. The nominal values are specifications for use in applications specified in this manual.
- For general specifications, refer to the following manual:
  - MELSEC iQ-F FX5U User’s Manual (Hardware)
  - MELSEC iQ-F FX5U User’s Manual (Analog Control)