Dear Customers,

March 2016
Fuji Electric Co., Ltd.

MICREX-SX Series SPH

Announcement of Addition of Instruction Manual

Thank you for using our Fuji programmable controller.
We hereby announce that we will add an instruction manual (1 sheet) for MICREX-SX series SPH.

1. Addition
   The instruction manual “Product Maintenance” will be additionally supplied with product.
   Refer to the attached document for the contents of the instruction manual.

2. Notes regarding Addition of Instruction Manual
   (1) The target product is MICREX-SX SPH series.
   Products such as cables, batteries, and software with which no instruction manual is conventionally supplied are excluded.

   (2) The addition will be started with products to be manufactured on March 22, 2016. (To be automatically switched after the remaining inventory has been exhausted.)

3. Attached document
   Sample of instruction manual "Product Maintenance" (No. INC-TN405830-JE) 1 sheet
Thank you for purchasing Fuji Electric Programmable Controller MICREX-SX Series.

This instruction manual describes necessary product maintenance for long-term use. Be sure to read the corresponding user's manuals listed below for details before using the product:

- Programmable Controller Maintenance Guide, MICREX-SX Series (FH329)
- Hardware, MICREX-SX Series (FH201)
- Troubleshooting For Expert (DH300Win) V3, MICREX-SX Series (FH329)
- Troubleshooting For SX-Programmer Standard, MICREX-SX Series (FH194)

The above manuals are available on Fuji Electric Electric Co., Ltd. site below:
http://www.fujielectric.com

1. Warranty Information

1-1. Period

(1) The period of the warranty is effective until the earliest of either 1 year from the date of purchase or 18 months from the date of manufacture of the product.

(2) The warranty for the parts repaired by Fuji Electric service department is effective for 6 months from the date of repair.

1-2. Coverage

(1) In the event that a malfunction occurs in the period of warranty due to Fuji Electric’s responsibility, the malfunctioning parts are exchanged or repaired for free at the point of purchase or delivery. However, the warranty does not apply to the following cases.

- The malfunction occurs due to inappropriate conditions, environment, handling or usage that is not instructed in a catalogue, instruction manual or user's manual.
- The malfunction is caused by the factors that do not originate in the purchased or delivered product.
- The malfunction is caused by other devices or software design that does not originate in Fuji Electric products.
- For programmable Fuji Electric products, the malfunction occurs due to programming that is not performed by Fuji Electric.
- The malfunction occurs due to an alteration or repair that is not performed by Fuji Electric.
- The malfunction occurs because the expendable parts listed in an instruction manual or catalogue were not maintained or exchanged in an appropriate manner.
- The malfunction occurs due to factors that were not foreseeable by the practical application of science and technology at the time of purchase or delivery.
- The malfunction occurs due to a natural disaster (earthquake, lightning, storm and flood damages, etc.) or a man-made disaster that Fuji Electric is not responsible for.

(2) The warranty is only applicable to the single purchased delivered product.

(3) The warranty covers only the area stated in above (1). Any damage induced by the malfunction of the purchased or delivered product, including the damage or loss to a device or machine and passive damages, is not covered by the warranty.

1-3. Malfunction diagnosis

Malfunction is to be diagnosed temporarily by the purchaser. This diagnosis can be conducted by Fuji Electric or its delegated service provider with due charge upon the request from the purchaser. The charge is to be paid by the purchaser at the rate stipulated in the rate schedule of Fuji Electric.

1-4. Usage

Be sure to use the product described in this instruction manual under the conditions in which none of the conditions that will not occur even in the case of product failure or malfunction. In addition, safety measures such as redundant design, malfunction preventing design, fail-safe design, faultproof design must be taken externally and systematically.

Be sure not to use the product under the conditions or circumstances that are not instructed in an instruction manual or user’s manual. For the usage below, contact Fuji Electric beforehand.

- Power plant including nuclear power, radiation facilities, railroad, space/fight equipments, lifeline facilities including gas/water/electricity/communication, medical equipments, motor vehicles, combustion/fuel equipments, entertainment devices, data center, systems involving billing or settlement, etc. (with high electric current or high voltage level).
- Electric for overhaul of the relevant product (replacement of aluminum electrolytic capacitor, etc.).

1-5. Period for repair and provision of spare parts after the production is discontinued (maintenance period)

The discontinued models (products) can be repaired for 7 years from the date of discontinuation. After that, most spare parts used for repair are provided for 7 years from the date of discontinuation.

Also, some electric parts may not be obtained due to their short life cycle. In this case, repair or provision of the parts may be difficult in the above period. Please contact Fuji Electric or its service providers for further information.

1-6. Delivered term

Standard products that do not entail application setting or adjustment are regarded as received by the purchaser upon delivery. Fuji Electric is not responsible for local adjustments and test runs.

1-7. Service

The price of the delivered or purchased products does not include the service fee for the technician. Please contact Fuji Electric or its service providers for further information.

2. Durable years (Product life)

MICREX-SX Series are designed for ten years of product life under the general use conditions (normal temperature 40°C, Humidity 60%RH) except life-limited parts and expendable parts.

The product life may be shortened depending on the use circumstances or system operation conditions. For maintaining the product life, it is important to perform planned maintenance including management of life-limited parts and expendable parts.

3. Maintenance Plan

Maintenance includes "preventive maintenance" and "corrective maintenance." Also, preventive maintenance includes "daily inspection" and "periodic inspection." It is important to perform the preventive maintenance periodically.

(1) Daily inspection

Perform daily inspection to check the product operates normally before starting your equipment.

(2) Periodic maintenance

Perform periodic inspection to replace life-limited parts before they reach the life end for preventing malfunction. Under severe use conditions, it is recommended to shorten the interval between inspections.

(3) Cautions for Inspection

Be sure to check all the inspection items using a check sheet. By managing inspection results as a history, they will be useful for the next inspection or in case of trouble.

(4) Inspection items

For inspection items, refer to user’s manual “Programmable Controller Maintenance Guide, MICREX-SX Series” (FEH329) that describes inspection items, inspection conditions, failure criteria, troubleshooting, inspection method, daily and periodic inspections, etc.

4. Corrective Inspection (Troubleshooting)

Refer to user’s manual “Programmable Controller Maintenance Guide, MICREX-SX Series” (FEH329) that describes how to handle trouble such as PLC system operation failure. In addition, refer to troubleshooting manuals (FEH194, FEH197) for more details.

5. Product Use Conditions, Environmental Conditions

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical environmental conditions</td>
<td>Operating ambient temperature 0°C to 55°C</td>
</tr>
<tr>
<td></td>
<td>Storage (transportation) temperature -20 to +70°C</td>
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<tr>
<td></td>
<td>Relative humidity 20% to 95%RH (without condensation)</td>
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<tr>
<td></td>
<td>Pollution degree 2 (free from conductive dust)</td>
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<tr>
<td></td>
<td>Corrosion immunity Free from corrosive gases. Not stained with organic solvents</td>
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<tr>
<td></td>
<td>Operating altitude 2000 m or less above sea level (Transport condition: 70 kPa (equivalent to 3000 m above sea level) or more</td>
</tr>
<tr>
<td>Mechanical service conditions</td>
<td>Vibration Half amplitude: 0.15 mm, Constant acceleration: 18 m/s²</td>
</tr>
<tr>
<td></td>
<td>Shock Peak acceleration: 147 m/s², 3 cycles in each direction</td>
</tr>
<tr>
<td></td>
<td>Electrostatic discharge Contact discharge: ±6 kV, Aerial discharge: ±8 kV</td>
</tr>
<tr>
<td>Electrical service conditions</td>
<td>Radiated, radio-frequency, electromagnetic field 90 to 1000 MHz 10V/m, 1.4 to 2.0 GHz 3 V/m, 2.0 to 2.7 GHz 3V/m</td>
</tr>
<tr>
<td></td>
<td>Fast transient burst Power supply line and I/O signal line (AC non-shielded line): ±2 kV Communication line and I/O signal line (except for AC nonshielded line): ±1 kV</td>
</tr>
<tr>
<td></td>
<td>Radio frequency electromagnetic field Conducted interference 150 kHz to 80 MHz, 10 V</td>
</tr>
<tr>
<td></td>
<td>Power frequency magnetic field 50 Hz, 30 V/m</td>
</tr>
<tr>
<td></td>
<td>Structure Open Type device (Built-in control panel type)</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Natural air cooling</td>
</tr>
</tbody>
</table>

6. Life-limited parts, Expendable parts and Relevant products

The following life-limited parts and expendable parts are used in PLC and affect the product life.

(1) Aluminum electrolytic capacitor

- Relevant product: Power supply module
- Design life: 10 years under normal conditions (Normal temperature 40°C, Humidity 60%RH)
- Effect of life: Failure of PLC system may occur due to deterioration of the power supply such as an increase in a ripple current. If the product is used even after its life is ended, electrolyte may leak or be depleted to cause offensive odor, smoke or fire.
- Factor of effect on life: Temperature: Decreases the life by half. (Arrhenius’s equation: 10°C temperature rise doubles reaction rates.)
- Replacement time: Predict the life taking the use conditions into consideration and replace the product or the aluminum electrolytic capacitor at a proper time within 5 years as the periodic inspection for the preventive maintenance.

(2) Battery

- Relevant product: CPU module
- Design life: Depends on the CPU type.
- For details, refer to "5-2 Battery Replacement" in user’s manual “Hardware(HE201)1”
- Effect of life: Due to depletion of a battery, stored data will be lost during CPU power-off.
- Factor of effect on life: Temperature: Increases in temperature of 10°C reduces the life by half. (Arrhenius’s equation: a 10°C temperature rise doubles reaction rates.)
- Replacement time: Refer to user’s manual “Hardware(HE201)2” to check the replacement time.

(3) Electromagnetic relay

- Relevant product: Relay output module
- Design life: Refer to "3-5-2 Life curve of relays" in user’s manual “Hardware(HE201)3”
- Effect of life: Failure of current on/off operation by relay
- Factor of effect on life: Load condition and the number of on/off operation times of relay
- Replacement time: Refer to "3-5-2 Life curve of relays" in user’s manual “Hardware(HE201)4” to determine the replacement time.

7. Spare Parts

It is recommended to prepare spare parts to promptly restore a system in case of trouble. For preventive maintenance and corrective maintenance, prepare dedicated cables and one or more spare parts for each module.

Remarks: This instruction manual covers only the major topics on the product maintenance. The contents of this instruction manual are subject to change without notice.

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