1.2 Outside dimensions and name of each part

Unit: mm

- Accessories: Top cover for board 1
- Terminal resistor 330 2
- Connector for PLC
- M3 screw to mount board 2
- M3 screw to fix top cover 1
- Station No. label for link
- Mounting hole (2 x 4.5)

1.3 System configuration

For the system configuration, refer to the FX Series Communication User’s Manual offered separately.

2. Installation

2.1 Installation procedure

Make sure to turn off the power before installing the 485BD.

A) Communication board 485BD (function expansion board)
B) Connector for optional equipment
C) M3 screw to fix board (2 pieces) (offered as accessories of board)
D) Top cover for board (offered as an accessory of board)
E) M3 screw to fix top cover (offered as an accessory of board)

Note: This screw cannot be removed.

- Plug the communication board A) in to the connector B).
- Fix the board to the basic unit with two M3 screws C). (Tightening torque: 0.3 to 0.6 N·m)
- Remove the top cover of the basic unit, and attach the top cover for board D) instead.
- During attachment, remove D) with a nipper, etc. so that the connector of the board is exposed.
- Fix the top cover with the M3 screw E). (Tightening torque: 0.3 to 0.6 N·m)
- When the FX-1N 5DM is used also, refer to the handy manual offered with the FX-1N FXn Series PLC main unit.

Only one function expansion board is available for one FX-1N FXn Series PLC basic unit. Never stack up two or more function expansion boards. (Even if they are stacked up, they do not function at all.)

Guidelines for the safety of the user and protection of the RS-485 Communication Board FX-1N-485-BD

- This manual has been written to be used by trained and competent personnel. This is defined by the European directives for machinery, low voltage and EMC.
- If in doubt at any stage during the installation of the RS-485 Communication Board FX-1N-485-BD please consult the nearest Mitsubishi Electric distributor.
- All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- Owing to the very great variety in possible application of this equipment, you must satisfy yourself as to its suitability for your specific application.

3. Specifications

3.1 Environmental specifications

The environmental specifications are equivalent to those of the PLC main unit. (Refer to the manual of the PLC main unit.)

3.2 Power supply specifications

5V DC, 60 mA is supplied as the power from the PLC.

3.3 Performance specifications

<table>
<thead>
<tr>
<th>Transmission standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum transmission distance</td>
<td>In conformance to RS-485 and RS-422</td>
</tr>
<tr>
<td>Communication type</td>
<td>Non-procedure, dedicated protocol, parallel link, easy PC link: Half duplex, bi-directional</td>
</tr>
<tr>
<td>Communication method</td>
<td>Non-procedure, dedicated protocol 1 procedure, dedicated protocol 4 procedure, parallel link, easy PC link</td>
</tr>
<tr>
<td>Transmission speed</td>
<td>Non-procedure, dedicated protocol: 300 to 19,200 bps</td>
</tr>
<tr>
<td>(baud rate)</td>
<td>Parallel link: 19,200 bps</td>
</tr>
<tr>
<td>Insulation</td>
<td>Not insulated</td>
</tr>
</tbody>
</table>

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Manual revision: B
Date: MAR 2000

MITSUBISHI ELECTRIC CORPORATION

Effective MAR 2000
Specifications are subject to change without notice
1. Outline of Product

The RS-485 communication board (hereafter referred to as "485BD") is connected to the FX series PLC's (two FX series PLC's) are connected on a one-to-one basis. The 485BD transfers automatically up to 64 auxiliary relays and 8 data registers when up to eight FX series PLC units are connected. For the setting procedure and program examples, refer to the FX series Communication User's Manual.

1.1 Features

1) Data transfer function using the non-procedure method. The 485BD transfers the data using the RS instruction between a bar code reader, personal computer or printer. As the 485BD is not equipped with buffer memory, it sends and receives the data using data registers specified by the RS instruction. For the RS instruction and the communication setting, refer to the FX series Communication User's Manual.

2) Data transfer function using a dedicated protocol. The 485BD transfers the data when a personal computer directly specifies devices of the PLC. For the dedicated protocol and the communication setting, refer to the FX series Communication User's Manual.

3) Parallel link function. The 485BD transfers automatically 50 auxiliary relays and 10 data registers when two FX series PLCs (two FX series PLC's) are connected on a one-to-one basis. For the setting procedure and program examples, refer to the FX series Communication User's Manual.

4) Easy PC link function. The 485BD transfers automatically up to 64 auxiliary relays and 8 data registers when up to eight FX series PLC units are connected. For the setting procedure and program examples, refer to the FX series Communication User's Manual. For the FX series PLC, the version should be 2.00 or greater (manufacturer's serial No. 780000 or later).

1.2 Outside dimensions and name of each part

Unit: mm

- Accessory: Top cover for board 1
- Terminal resistor 330 2
- Terminal resistor 110 1
- M3 screw to mount board 2
- M3 screw to fix top cover 1
- Station label for link 1

1.3 System configuration

For the system configuration, refer to the FX series Communication User's Manual offered separately.

2. Installation

2.1 Installation procedure

Make sure to turn off the power before installing the 485BD.

A) Communication board 485BD (function expansion board)
B) Connector for optional equipment
C) M3 screw to fix board (2 pieces) (offered as accessories of board)
D) Top cover for board (offered as an accessory of board)
E) M3 screw to fix top cover (offered as an accessory of board)

Note: This screw cannot be removed.

- Plug the communication board "A" in to the connector "B".
- Fix the board to the basic unit with two M3 screws "C". (Tightening torque: 0.3 to 0.6 N*mm)
- Remove the top cover of the basic unit, and attach the top cover for board "D" instead. During attachment, remove D) with a nipper, etc. so that the connector of the board is exposed.
- Fix the top cover with the M3 screw "E". (Tightening torque: 0.3 to 0.6 N*mm)
- When the FX-5DM is used also, refer to the handy manual offered with the FX series PLC main unit.
- Only one function expansion board is available for one FX series PLC basic unit. Never stack up two or more function expansion boards. (Even if they are stacked up, they do not function at all.)

Guidelines for the safety of the user and protection of the RS-485 Communication Board FX-5BD

- This manual has been written to be used by trained and competent personnel. This is defined by the European directives for machinery, low voltage and EMC.
- If in doubt at any stage during the installation of the RS-485 Communication Board FX-5BD always consult a professional electrical engineer who is qualified and trained to the local and national standards. If in doubt about the operation or use of the RS-485 Communication Board FX-5BD please consult the nearest Mitsubishi Electric distributor.
- Under no circumstances will Mitsubishi Electric be liable or responsible for any consequential damage that may arise as a result of the installation or use of this equipment.
- All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- Owing to the very great variety in possible application of this equipment, you must satisfy yourself as to its suitability for your specific application.
1. Outline of Product

The RS-485 communication board FX-1N-485-BD (hereafter referred to as "485BD") is connected to the FX-1N/1S/1N Series PLC basic unit, and available for the applications described below.

Only one function expansion board can be connected to one PLC basic unit. Accordingly, the 485BD cannot be used together with the FX-1N-422-BD or the FX-1N-232-BD.

1.1 Features

1) Data transfer function using the non-procedure method.
   - The 485BD transfers the data using the RS instruction between a bar code reader, personal computer or printer.
   - As the 485BD is not equipped with buffer memory, it sends and receives the data using data registers specified by the RS instruction.
   - For the RS instruction and the communication setting, refer to the FX Series Communication User's Manual.

2) Data transfer function using a dedicated protocol.
   - The 485BD transfers the data when a personal computer directly specifies devices of the PLC.
   - For the dedicated protocol and the communication setting, refer to the FX Series Communication User's Manual.

3) Parallel link function.
   - The 485BD transfers automatically 50 auxiliary relays and 10 data registers when two FX-1N/1S Series PLC's (two FX-1N/1S Series PLC's) are connected on a one-to-one basis.
   - For the setting procedure and program examples, refer to the FX Series Communication User's Manual.

4) Easy PC link function.
   - The 485BD transfers automatically to 64 auxiliary relays and 8 data registers when up to eight FX-1N/1S Series PLC's are connected.
   - For the setting procedure and program examples, refer to the FX Series Communication User's Manual.

2. Installation

2.1 Installation procedure

Make sure to turn off the power before installing the 485BD.

A) Communication board 485BD (function expansion board)
   - Connector for optional equipment
   - M3 screw to fix board (2 pieces) (offered as accessories of board)
   - Top cover for board (offered as an accessory of board)
   - M3 screw to fix top cover (offered as an accessory of board)
   - Connector for display module FX-1N-5DM or memory cassette FX-1N-EEPROM-8L

B) Fix the board to the basic unit with two M3 screws C).

C) Fix the top cover of the basic unit, and attach the top cover for board D) instead.

D) During attachment, remove D)' with a nipper, etc. so that the connector of the board is exposed.

E) Only one function expansion board is available for one FX-1N/1S Series PLC basic unit. Never stack up two or more function expansion boards. (Even if they are stacked up, they do not function at all.)

3. Specifications

3.1 Environmental specifications

The environmental specifications are equivalent to those of the PLC main unit. (Refer to the manual of the PLC main unit.)

3.2 Power supply specifications

5V DC, 60 mA is supplied as the power from the PLC.

3.3 Performance specifications

Specifications are subject to change without notice.