RS-232C COMMUNICATION BOARD FX1N-232-BD

USER’S GUIDE
JY992D84401E

1. Outline of Product
The RS-232C communication board FX1N-232-BD (hereafter referred to as “232BD”) is connected to the FX to FX/N Series PLC basic unit, and available for the applications described below.

1.1 Features
1) Port to transfer the data using the non-procedure method between diversified RS-232C equipment such as personal computer, bar code reader and printer
2) Port to transfer the data using a dedicated protocol between an RS-232C equipment
3) Port to connect a programming tool

1.2 Outside dimensions and name of each part
Unit: mm (inches)

<table>
<thead>
<tr>
<th>Side B</th>
<th>Side A</th>
</tr>
</thead>
<tbody>
<tr>
<td>43(1.69)</td>
<td>35(1.38)</td>
</tr>
<tr>
<td>10(0.39)</td>
<td>9(0.35)</td>
</tr>
</tbody>
</table>

- Mounting hole (2-ø6.5)
- Connector for PLC
- RXD LED: Lit during receive.
- TXD LED: Lit during send.
- Connector for RS-232C equipment
- Top face of this connector is higher than the top face of the PLC panel cover by approximately 7 mm.
- Hole for connector fixing screw (ø4-40UNC)
- Accessories: Top cover for board 1, M3 screw to mount board 2, M3 screw to fix top cover 1
- Connector for display module FX1N-5DM or memory cassette FX1N-EEPROM-8L

2. Installation
2.1 Installation procedure
Make sure to turn off the power before installing the 232BD.

A) Communication board 232BD (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: Do not remove this screw of FX1S.

1) Commumication board FX1N-232-BD please consult the nearest Mitsubishi Electric distributor.
2) Port to transfer the data using a dedicated protocol between an RS-232C equipment
3) Port to connect a programming tool

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, 20 mA is supplied as the power from the PLC.

This manual only describes the specifications for RS-232C Communication Board FX1N-232-BD. For complete operation, wiring, mounting and programming instructions please refer to the FXs, FX-n HARDWARE MANUAL and PROGRAMMING MANUAL. These manuals should be read and understood before attempting to install or use the unit.
The communication connector of the 232BD is the D-sub, 9-pin socket type. The table below shows the pin arrangement.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CD</td>
<td>Receive carrier detection</td>
<td>Turns ON when carrier data receive is detected.</td>
</tr>
<tr>
<td>2</td>
<td>RD(RXD)</td>
<td>Receive data input</td>
<td>Receive data (RS-232C equipment to 232BD)</td>
</tr>
<tr>
<td>3</td>
<td>TD(TXD)</td>
<td>Send data input</td>
<td>Send data (232BD to RS-232C equipment)</td>
</tr>
<tr>
<td>4</td>
<td>ER(DTR)</td>
<td>Send request</td>
<td>Turns ON when RS-232C equipment becomes ready for receive.</td>
</tr>
<tr>
<td>5</td>
<td>SG(GND)</td>
<td>Signal ground</td>
<td>Signal ground</td>
</tr>
<tr>
<td>6</td>
<td>DR(DSR)</td>
<td>Send enabled</td>
<td>Turns ON when send request is given to RS-232C equipment</td>
</tr>
</tbody>
</table>

1.3 System configuration

For the system configuration, refer to the FX Series User's Manual - Data Communication Edition offered separately.

2. Installation

2.1 Installation procedure

Make sure to turn off the power before installing the 232BD.

A) Communication board 232BD (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: Do not remove this screw of FX1S.

- If in doubt at any stage during the installation of the RS-232C Communication Board FX-1N-232-BD 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-232C Communication Board FX-1N-232-BD 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.

2.2 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, 20 mA is supplied as the power from the PLC.
1.3 System configuration

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

2. Installation

2.1 Installation procedure

Make sure to turn off the power before installing the 232BD.

A) Communication board 232BD (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: Do not remove this screw of FX 232BD.

1) Plug the communication board A) in to the connector B).
2) Fix the board to the basic unit with two M3 screws C). (Tightening torque: 0.3 to 0.6 N·m)
3) Remove the top cover of the basic unit, and attach the top cover for board D) instead.
4) During attachment, remove D) with a nipper, etc. so that the connector of the board is exposed.
5) Fix the top cover with an M3 screw E). (Tightening torque: 0.3 to 0.6 N·m)

When the FX-232BD is used also, refer to the Hardware manual offered with the FX-232BD serial main unit.

Only one function expansion board is available for one FX-232BD PLC basic unit. Never stack up two or more function expansion boards. (Even if they are stacked up, they do not function at all.)

The 485BD can be used with the FX-232BD-8L only for program transfer. (The FX-232BD-8L cannot be connected continuously)

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

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1. Outline of Product

The RS-232C communication board FX1N-232-BD (hereafter referred to as “232BD”) is connected to the FX1n/FX Series PLC basic unit, and available for the applications described below.

1.1 Features

1) Port to transfer the data using the non-procedure method between diversified RS-232C equipment such as personal computer, bar code reader and printer
2) Port to transfer the data using a dedicated protocol between an RS-232C equipment
3) Port to connect a programming tool
4) EZ-Support function (A port to transfer the data using the non-procedure method between diversified RS-232C equipment, B port to transfer the data using a dedicated protocol between an RS-232C equipment, C port to connect a programming tool, D port to be used with the FX1N-EEPROM-8L only for program transfer. (The FX1n-EEPROM-8L cannot be connected continuously))

1.2 Outside dimensions and name of each part

Unit: mm (inches)

1) Mounting hole (2-e3.5)
2) Connector for PLC
3) RXD LED: Lit during receive.
4) TXD LED: Lit during send.
5) Connector for RS-232C equipment

1.3 System configuration

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

2. Installation

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Make sure to turn off the power before installing the 232BD.

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Note: Do not remove this screw of FX1n.

- 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 M3 screw E).
- Tightening torque: 0.3 to 0.6 N·m
- When the FX1n is used also, refer to the Hardware manual offered with the FX1n/FX Series PLC main unit.
- Only one function expansion board is available for one FX1n/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.)
- The 485BD can be used with the FX1n-EEPROM-8L only for program transfer.

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3.2 Power supply specifications

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Pin No. | Signal Name | Signal | Function
---|---|---|---
1 | CD | Receive carrier detection | Turns ON when carrier for data receive is detected.
2 | RD(RXD) | Receive data | Receive data (RS-232C equipment + 232BD)
3 | TD(TXD) | Send data input | Send data (RS-232C equipment + 232BD)
4 | ER(DTR) | Send request | Turns ON when RS-232C equipment becomes ready for receive.
5 | SG(GND) | Signal ground | Signal ground
6 | DR(DSR) | Send enabled | Turns ON when send request is given to RS-232C equipment
7, 8, 9 | Not used | Not used

Pin No. 7, 8, 9 are not used.

3.3 Performance specifications

- Transmission standard: In conformance to RS-232C
- Maximum transmission distance: 15 m (49 ft) maximum
- External equipment connection method: D-sub, 9-pin type (pin socket: manufactured by JST Mfg.) with JES-9P-2A3A (#4-40UNC, inch screw thread type)
- Indication (LED): RXD, TXD
- Communication method: Half duplex, bi-directional
- Communication procedure: Non-procedure, dedicated protocol 1 procedure, dedicated protocol 4 procedure, protocol for programming tool
- Insulation: Not insulated

Guidelines for the safety of the user and protection of the RS-232C Communication Board FX1N-232-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-232C Communication Board FX1N-232-BD always consult a professional electrical engineer who is qualified and trained to the local and national standards. In doubt about the operation or use of the RS-232C Communication Board FX1N-232-BD 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.

Attention

- This product is designed for use in industrial applications.
- Authorized Representative in the European Community: Mitsubishi Electric Europe B.V.

Date: April 2015

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Effective April 2015
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