

This manual only describes the specifications for RS-485 Communication Board FX1N-485-BD. For complete operation, wiring, mounting and programming instructions please refer to the FX1S, FX1N HARDWARE MANUAL and PROGRAMMING MANUAL. These manuals should be read and understood before attempting to install or use the unit.

Associated Manuals

Manual name	Manual No.	Description
FX1S Series Hardware Manual	JY992D83901	Describes contents related to hardware of FX1S Series PLC such as specifications, wiring and installation.
FX1N Series Hardware Manual	JY992D88201	Describes contents related to hardware of FX1N Series PLC such as specifications, wiring and installation.
FX Programming Manual II	JY992D88101	Describes instructions in FX1S/FX1N/FX2N/FX2NC Series.
FX Series User's Manual - Data Communication Edition	JY997D16901	Describes contents related to communication available in FX Series PLC such as wiring, communication setting and program examples. (Make sure to read this manual.)

1. Outline of Product

The RS-485 communication board FX1N-485-BD (hereafter referred to as "485BD") is connected to the FX1S/FX1N 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 FX1N-422-BD or the FX1N-232-BD.

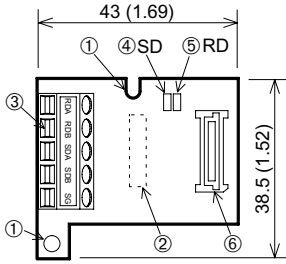
1.1 Features

- 1) No protocol communication.
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 User's Manual - Data Communication Edition.
- 2) Computer link by 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 User's Manual - Data Communication Edition.
- 3) Parallel link.
The 485BD transfers automatically auxiliary relays and data registers when two FX1S Series PLC's or two FX1N Series PLC's are connected on a one-to-one basis.
For the setting procedure and program examples, refer to the FX Series User's Manual - Data Communication Edition.
- 4) N:N network.
The 485BD transfers automatically up to 64 auxiliary relays and 8 data registers when up to eight FX1S/FX1N Series PLC units are connected. For the setting procedure and program examples, refer to the FX Series User's Manual - Data Communication Edition.

1.2 Outside dimensions and name of each part

Unit: mm (inches)

Accessories: Top cover for board 1
Terminal resistor 330Ω 2
Terminal resistor 110Ω 1
M3 screw to mount board 2
M3 screw to fix top cover 1
Station No. label for link



- ① Mounting hole (2-φ3.5)
- ② Connector for PLC
- ③ Terminal block for RS-485 equipment
The top face of this terminal box is higher than the top face of the PLC panel cover by approximately 7 mm.
- ④ SD LED: Flickers at high speed during send.
- ⑤ RD LED: Flickers at high speed during receive.
- ⑥ Connector for display module FX_{1N}-5DM or memory cassette FX_{1N}-EEPROM-8L

1.3 System configuration

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

2. Installation

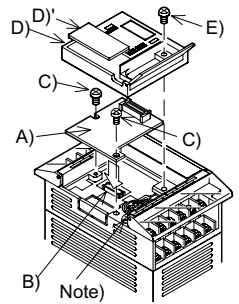
2.1 Installation procedure

Make sure to turn off the power before installing the 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: Do not remove this screw of FX_{1S}.

- 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 Hardware manual offered with the FX_{1S}/FX_{1N} Series PLC main unit.
- Only one function expansion board is available for one FX_{1S}/FX_{1N} 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 FX_{1N}-EEPROM-8L only for program transfer.
(The FX_{1N}-EEPROM-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

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

3.3 Performance specifications

Transmission standard	In conformance to RS-485 and RS-422
Maximum transmission distance	50m (164ft) maximum
Communication type	No protocol communication, Computer link (dedicated protocol), parallel link, N:N network
Communication method	Half duplex, bi-directional
Communication procedure	No protocol communication, Computer link (dedicated protocol 1, dedicated protocol 4), parallel link, N:N network
Transmission speed (baud rate)	No protocol communication, Computer link (dedicated protocol): 300 to 19200 bps Parallel link: 19200(bps) N:N network: 38400(bps)
Insulation	None

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 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_{1N}-485-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.

Manual number : JY992D84201

Manual revision : C

Date : AUGUST 2006

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

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FX_{1N}

FX_{1N}-485-BD RS-485 COMMUNICATION BOARD

USER'S GUIDE

JY992D84201C

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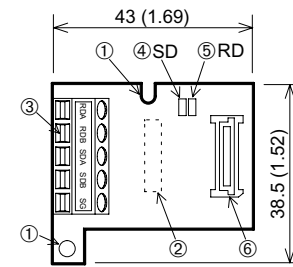
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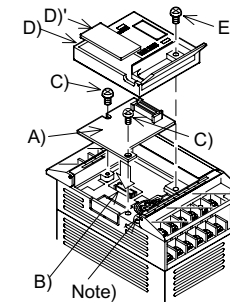
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