

RS-232C COMMUNICATION BOARD FX<sub>1N</sub>-232-BD

# FX<sub>1N</sub>

## USER'S GUIDE

JY992D84401C

This manual only describes the specifications for RS-232C Communication Board FX<sub>1N</sub>-232-BD. For complete operation, wiring, mounting and programming instructions please refer to the FX<sub>1S</sub>, FX<sub>1N</sub> 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
FX <sub>1S</sub> Series Hardware Manual	JY992D83901	Describes contents related to hardware of FX <sub>1S</sub> Series PLC such as specifications, wiring and installation.
FX <sub>1N</sub> Series Hardware Manual	JY992D88201	Describes contents related to hardware of FX <sub>1N</sub> Series PLC such as specifications, wiring and installation.
FX Programming Manual II	JY992D88101	Describes instructions in FX <sub>1S</sub> /FX <sub>1N</sub> /FX <sub>2N</sub> /FX <sub>2NC</sub> 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.)

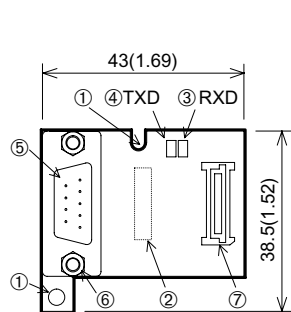
## 1. Outline of Product

The RS-232C communication board FX<sub>1N</sub>-232-BD (hereafter referred to as "232BD") is connected to the FX<sub>1S</sub>/FX<sub>1N</sub> 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)

① Mounting hole (2-φ3.5)

② Connector for PLC

③ RXD LED: Lit during receive.

④ TXD LED: Lit during send.

⑤ Connector for RS-232C equipment

The top face of this connector is higher than the top face of the PLC panel cover by approximately 7 mm.

⑥ Hole for connector fixing screw (#4-40UNC)

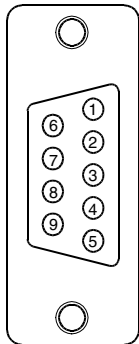
Accessories: Top cover for board 1

M3 screw to mount board 2

M3 screw to fix top cover 1

⑦ Connector for display module FX<sub>1N</sub>-5DM or memory cassette FX<sub>1N</sub>-EEPROM-8L

The communication connector of the 232BD is the D-sub, 9-pin socket type. The table below shows the pin arrangement.



Pin No.	Signal	Name	Function
1	CD	Receive carrier detection	Turns ON when carrier for data receive is detected.
2	RD(RXD)	Receive data input	Receive data (RS-232C equipment → 232BD)
3	SD(TXD)	Send data input	Send data (232BD → RS-232C equipment)
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		

### 1.3 System configuration

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

## 2. Installation

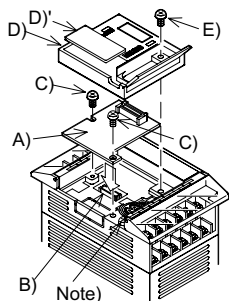
### 2.1 Installation procedure

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.

- 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 an M3 screw **E)**. (Tightening torque: 0.3 to 0.6 N·m)
- When the FX<sub>1N</sub>-5DM is used also, refer to the Hardware manual offered with the FX<sub>1S</sub>/FX<sub>1N</sub> Series PLC main unit.
- Only one function expansion board is available for one FX<sub>1S</sub>/FX<sub>1N</sub> 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<sub>1N</sub>-EEPROM-8L only for program transfer. (The FX<sub>1N</sub>-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, 20 mA is supplied as the power from the PLC.

### 3.3 Performance specifications

<b>Transmission standard</b>	In conformance to RS-232C
<b>Maximum transmission distance</b>	15 m (49ft) maximum
<b>External equipment connection method</b>	D-sub, 9-pin type (pin socket: manufactured by JST Mfg.) with JES-9P-2A3A (#4-40UNC, inch screw thread type)
<b>D-sub 9-pin layout</b>	1: CD 2: RD(RXD) 3: SD(TXD) 4: ER(DTR) 5: SG(GND) 6: DR(DSR) 7, 8, 9: NC (not used)
<b>Indication (LED)</b>	RXD, TXD
<b>Communication method</b>	Half duplex, bi-directional
<b>Communication procedure</b>	Non-procedure, dedicated protocol 1 procedure, dedicated protocol 4 procedure, protocol for programming tool
<b>Insulation</b>	Not insulated

#### Guidelines for the safety of the user and protection of the RS-232C Communication Board FX<sub>1N</sub>-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 FX<sub>1N</sub>-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<sub>1N</sub>-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.

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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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Changes for the Better

# FX1N

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### Associated Manuals

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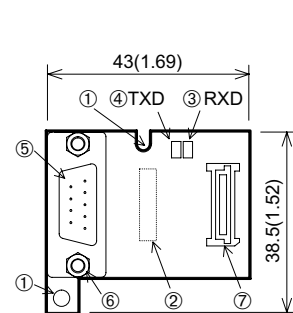
## 1. Outline of Product

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### 1.1 Features

- Port to transfer the data using the non-procedure method between diversified RS-232C equipment such as personal computer, bar code reader and printer
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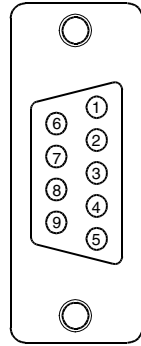
### 1.2 Outside dimensions and name of each part



Unit: mm (inches)

- Mounting hole (2-φ3.5)
- Connector for PLC
- RXD LED: Lit during receive.
- TXD LED: Lit during send.
- Connector for RS-232C equipment  
The 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 (#4-40UNC)  
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

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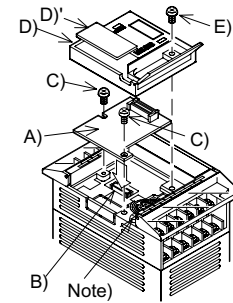
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