

# FX1N

RS-232C COMMUNICATION BOARD FX1N-232-BD

## USER'S MANUAL

JY992D84401B

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 FX1s, FX1N HARDWARE MANUAL and PROGRAMMING MANUAL. These manuals should be read and understood before attempting to install or use the unit.

### Related Manuals

Manual name	Manual No.	Description
FX1s Series Handy Manual	JY992D83801	Describes contents related to hardware of FX1s Series PLC such as specifications, wiring and installation.
FX1N Series Handy Manual	To be issued in April, 2000	Describes contents related to hardware of FX1N Series PLC such as specifications, wiring and installation.
FX1s/FX1N/FX2N/ FX2NC Series Programming Manual II	JY992D62001	Describes instructions in FX1s/FX1N/FX2N/FX2NC Series.
FX Series Communication User's Manual	JY992D69801	Describes contents related to communication available in FX Series PLC such as wiring, communication setting and program examples. (Make sure to read this manual.)

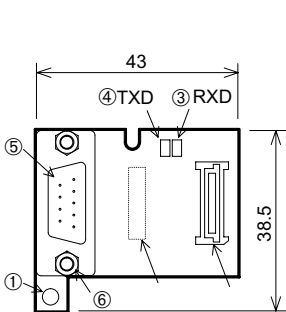
## 1. Outline of Product

The RS-232C communication board FX1N-232-BD (hereafter referred to as "232BD") is connected to the FX1s/FX1N 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

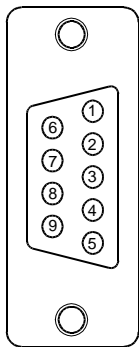
### 1.2 Outside dimensions and name of each part



Unit: mm

- ① Mounting hole (2- $\phi$ 3.5)
- 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 (M2, 6 mm)  
Accessories: Top cover for board 1  
M3 screw to mount board 2  
M3 screw to fix top cover 1
- ⑦ Connector for display module FX1N-5DM or memory cassette FX1N-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 Communication User's Manual offered separately.

## 2. Installation

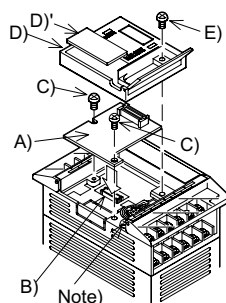
### 2.1 Installation procedure

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: 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 an M3 screw E). (Tightening torque: 0.3 to 0.6 N·m)
- When the FX1N-5DM is used also, refer to the handy manual offered with the FX1S/FX1N Series PLC main unit.
- Only one function expansion board is available for one FX1S/FX1N 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, 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 maximum
<b>External equipment connection method</b>	D-sub, 9-pin type (pin socket: manufactured by JST Mfg.) with JES-9P-2A3A lock metal (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>	
<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 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. If 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.

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