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USER'S MANUAL

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Phase-out/Discontinued

IE-70000-MC-SV2

ETHERNET INTERFACE MODULE

Document No. U11781EJ1V0UM00 (1st edition)
Date Published August 1996 P
Printed in Japan

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J96. 3

INTRODUCTION

This manual describes the functions and the operation of the Ethernet transmission module for MC Series in-circuit emulators.

CONTENTS

CHAPTER 1 OUTLINE

1.1 Outline

The IE-70000-MC-SV2 is one of the transmission modules of the MC Series in-circuit emulators that operates on a network line (10BASE-T).

The IE-70000-MC-SV2 has the following features.

- Can be connected to emulation module of MC Series in-circuit emulator
- Conforms to IEEE802.3 (10BASE-T)
- Comes with TCP/IP transmission protocol

Be sure to use a dedicated debugger when using this product.

1.2 Specifications

The main functions of the IE-70000-MC-SV2 are listed in Table 1-1 below.

Table 1-1

Parameter	Description
Target in-circuit emulator	All MC Series emulation modules
External interface	Ethernet: Conforms to IEEE802.3 (10BASE-T) RS-232C: 8-pin connector
Reset function	Power-on reset, reset button
Error display	Transmission error displayed on LED panel
Software	Transmission protocol control software: TCP/IP (routing, subnet supported) In-circuit emulator control software: Downloaded with external interface
Power supply	5 V 2 A
Size	116 x 67 x 27.5 mm
Operating ambient temperature/ humidity range	Temperature 10 to 40°C Humidity 10 to 80%RH (but no condensation)
Storage temperature/humidity range	Temperature –15 to +45°C Humidity 10 to 80%RH (but no condensation)

1.3 System Configuration Example

An system configuration example of the IE-70000-MC-SV2 connected to Ethernet (10BASE-T) is shown below. A line concentrator (hub) is used, which is connected to the IE-70000-MC-SV2 with a twisted-pair cable.

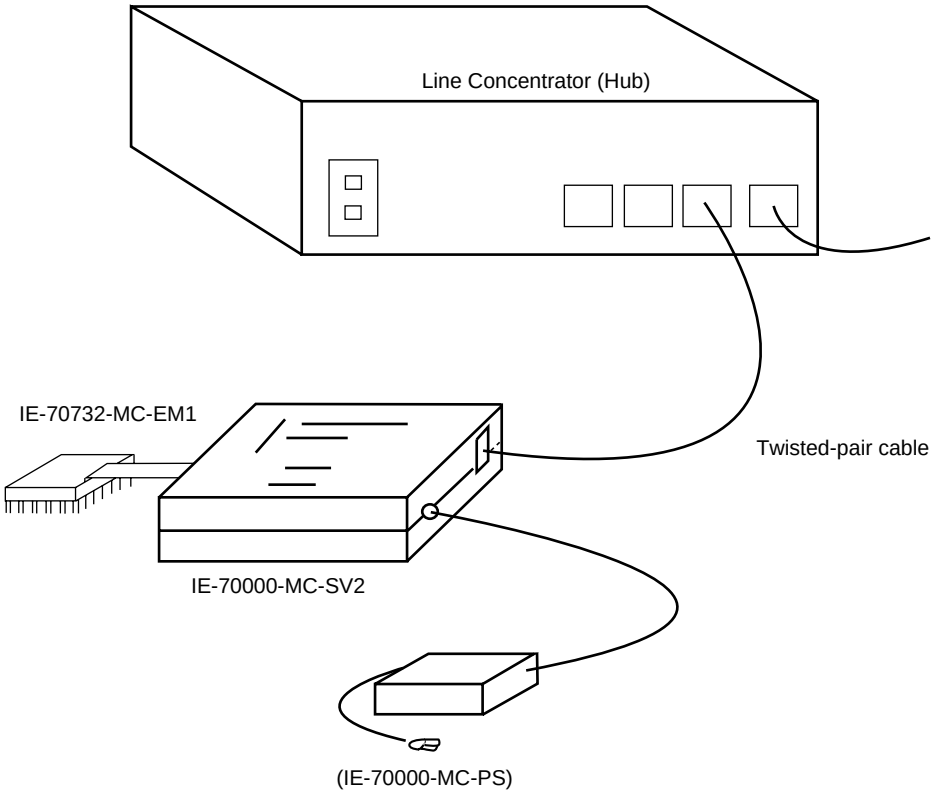


Figure 1-1. System Configuration Example

CHAPTER 2 SETUP AND POWER-ON/OFF

This chapter describes the contents of the IE-70000-MC-SV2 package and the connection procedure.

2.1 Setup

2.1.1 Package contents

(1) IE-70000-MC-SV2
(2) User's manual
(3) Power supply unit
(4) Network address setting RS-232C cable
(5) Emulation module connection cable
(6) Warranty

2.1.2 External view

The external view of the IE-70000-MC-SV2 is shown below.

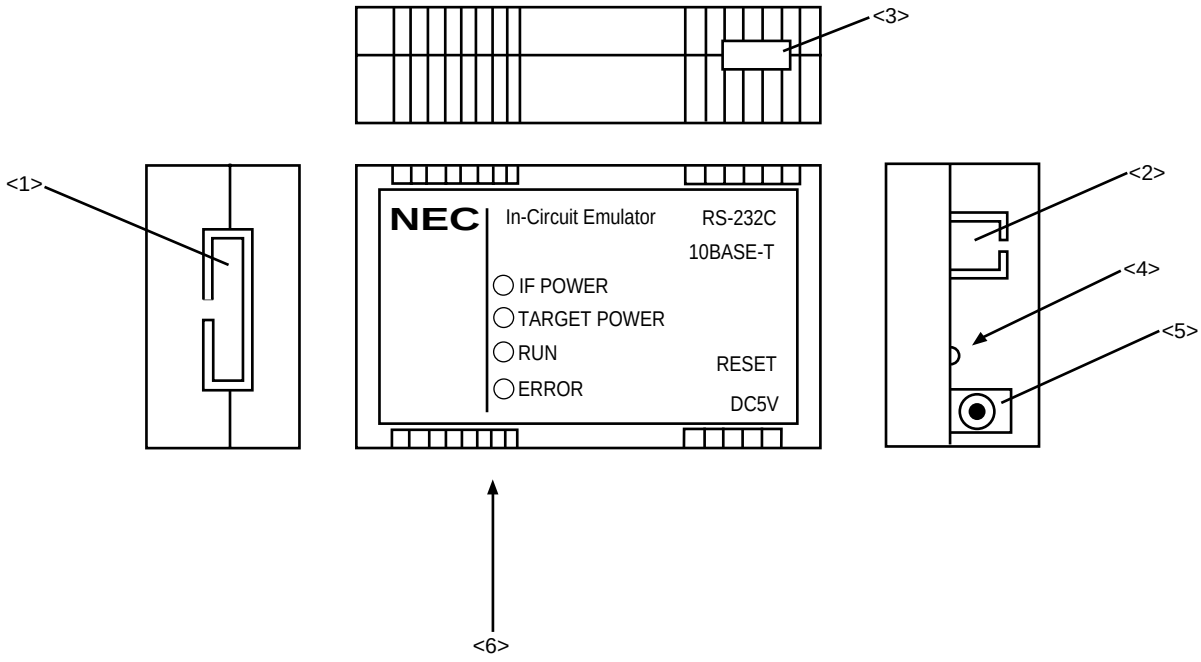


Figure 2-1. External View of IE-70000-MC-SV2

<1> IE-XXXXX-MC-EM1 connector
Connects the emulation module and IE-70000-MC-SV2.

<2> 10BASE-T connector
Connects module connector.

<3> RS-232C connector
IP address can be set by connecting IE-70000-MC-SV2 to a terminal using the provided cable.

<4> Reset switch
Used to reset the IE-70000-MC-SV2.

<5> Power supply connector
Connects the power supply unit (IE-70000-MC-PS1).

<6> LED
- IF POWER : LED indicating power on of the IE-70000-MC-SV2
- TARGET POWER : Indicates the power status of the user system.
- RUN : Indicates execution of user program.
- ERROR : Lights upon occurrence of TCP/IP transmission error.

2.1.3 Connection to IE-XXXXX-MC-EM1

The connection of the IE-70000-MC-SV2 to the IE-XXXXX-MC-EM1 is shown below.

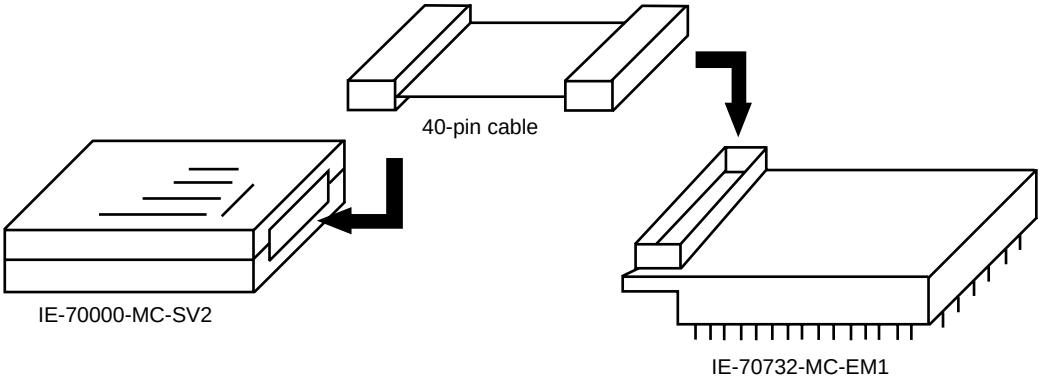


Figure 2-2. Connection Diagram of IE-70000-MC-SV2 to IE-XXXXX-MC-EM1

2.1.4 Connection to 10BASE-T

The connection of the IE-70000-MC-SV2 to the 10BASE-T is shown below.

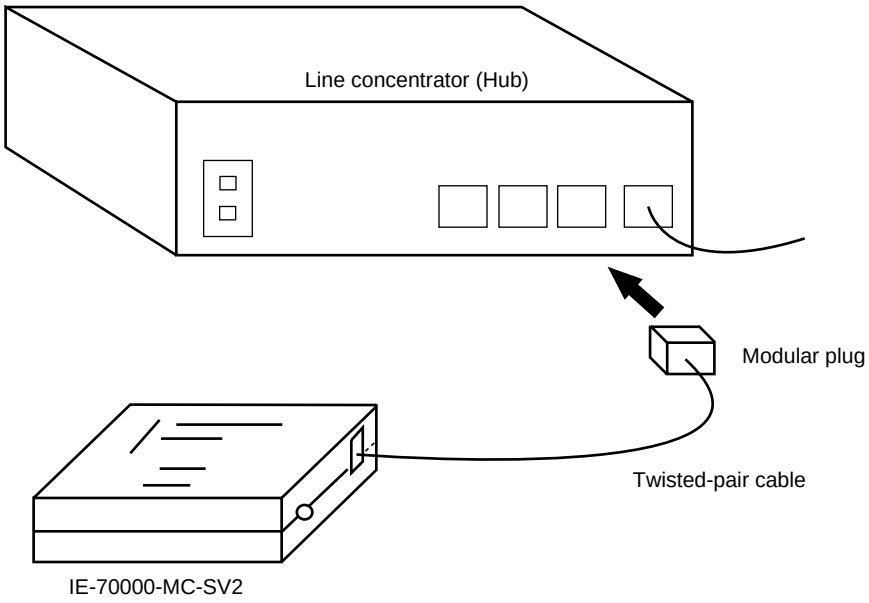


Figure 2-3. Connection Diagram of IE-70000-MC-SV2 to 10BASE-T

2.2 Power-On/Off

2.2.1 Power-on procedure

The power-on and power-off procedures for the IE-70000-MC-SV2 depend on the MC debugger that is used. For details on debuggers, refer to the debugger manuals (published separately).

CHAPTER 3 USAGE CAUTIONS

This chapter explains cautions to be observed when using the IE-70000-MC-SV2.

(1) Before connecting to a network, be sure to perform network address and other initial settings.

(2) When powering off, be sure to first input a terminate command from the host machine to break the network connection before turning off the power.

CHAPTER 4 NETWORK INFORMATION SETTINGS

This chapter explains how to set network information.

4.1 Terminal Connection

To set network information, the IE-70000-MC-SV2 must be connected to a terminal using the provided RS-232C cable.

The terminal used for connection should be set as described below.

Table 4-1. Terminal Settings

Interface	RS-232C
Transmission speed	9600 bps
Data length	8 bits
Parity check	None
Stop bit	2 bits
XON/XOFF	None
Local echo	None
Return key input	Transmission of CR code
At LF code reception	Line feed

4.2 Menu Screens

When the terminal is correctly connected, the following screen is displayed.

```
-------- SETUP NETWORK INFORMATION ----------------------------------------------------
          1.  LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
          2.  LOCAL IP ADDRESS          XXXXXXXX
          3.  LOCAL HOST NAME           XXXXXXXXXXXXXXXX
          4.  LOCAL PORT NO.            XXXX
          5.  REMOTE ETHERNET ADDRESS   XXXXXXXXXXXX
          6.  REMOTE IP ADDRESS         XXXXXXXX
          7.  REMOTE HOST NAME          XXXXXXXXXXXXXXXX
          8.  REMOTE PORT NO.           XXXX
          9.  ROUTER ADDRESS            XXXXXXXX
         10.  SUBNET ADDRESS MASK       XXXXXXXX
         11.  HUB LINK (ON=1/OFF=0)     0
         99.  EXIT
 ---------------------------------------------------------------------------------------------------------------------
FUNCTION NO. >>■
```

When the above screens are displayed, settings can be done by inputting the number of the desired setting item.

The local Ethernet address is a board-specific address that cannot be changed by the user, and therefore “1” cannot be selected.

The data set in these menu screens is written to EEPROM, and therefore is not lost even when the power is cut off.

4.3 Setting Procedure

4.3.1 Setting of local IP address

[Function]

Set the IP address of the IE-70000-MC-SV2. One IP address is allocated for each node. Set the address given by the network administrator.

[Input format]

Input 8-digit hexadecimal code.

[Input example]

```
            ⋮
        99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>2)                                                  Select function No. 2

LOCAL IP ADDRESS                >XXXXXXXX                          Display current IP address
NEW LOCAL IP ADDRESS            >12345678)                         Input new IP address

 ------ SETUP NETWORK INFORMATION ----------------------------     Display menu
         1. LOCAL ETHERNET ADDRESS   XXXXXXXXXXXX
            ⋮
         2. LOCAL IP ADDRESS         12345678                      Display new IP address
            ⋮
        99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.2 Setting of local host name

[Function]

Set host name (node name) of IE-70000-MC-SV2.

[Input format]

Input up to 16 alphanumerics.
Set the host name given by the network administrator.

[Input example]

```
                ⋮
          99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>3)                                                  Select function No. 3

LOCAL HOST NAME                >XXXXXX             Display current host name
NEW LOCAL HOST NAME            >LOCALHOSTNAME)     Input new host name

------- SETUP NETWORK INFORMATION  ----------------------------------  Display menu
          1. LOCAL ETHERNET ADDRESS   XXXXXXXXXXXX
                ⋮
          3. LOCAL HOST NAME          LOCALHOSTNAME          Display new host name
                ⋮
         99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.3 Setting of local port No.

[Function]

Set the port number of the IE-70000-MC-SV2.

[Input format]

Input 4-digit hexadecimal code other than 0. Normally, set a number equal to or greater than 0401 (1025 in decimal code).

[Input example]

```
          ⋮
        99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>4)                                          Select function No. 4

LOCAL PORT NO.                  >XXXX                      Display current port No.
NEW LOCAL PORT NO.              >0401)                     Input new port No.

------SETUP NETWORK INFORMATION----------------------------------- Display menu
          1. LOCAL ETHERNET ADDRESS   XXXXXXXXXXXX
               ⋮
          4. LOCAL PORT NO.           0401                 Input new port No.
               ⋮
        99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.4 Setting of remote Ethernet address

[Function]

Set Ethernet address of host machine controlling in-circuit emulator.

[Input format]

Input 12-digit hexadecimal code.
If not restricting the host machine, set FFFFFFFFFFFF. Normally, set FFFFFFFFFFFF.

[Input example]

```
              ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>5)                                          Select function No. 5

REMOTE ETHERNET ADDRESS          >XXXXXXXXXXXX        Display current Ethernet address
NEW REMOTE ETHERNET ADDRESS >0123456789AB)            Input new Ethernet address

------SETUP NETWORK INFORMATION----------------------------------  Display menu
          1. LOCAL ETHERNET ADDRESS       XXXXXXXXXXXX
               ⋮
          5. REMOTE ETHERNET ADDRESS 0123456789AB     Display new Ethernet address
               ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.5 Setting of remote IP address

[Function]

Set IP address of host machine.

[Input format]

Input 8-digit hexadecimal code.

If not restricting the host machine, set “0”. Normally, input “0”.

[Input example]

```
            ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>6)                                          Select function No. 6

REMOTE IP ADDRESS              >XXXXXXXX                   Display current IP address
NEW REMOTE IP ADDRESS          >12345678)                  Input new IP address

------SETUP NETWORK INFORMATION----------------------------------   Display menu
            1. LOCAL ETHERNET ADDRESS      XXXXXXXXXXXX
                  ⋮
           13. REMOTE IP ADDRESS           12345678        Display new IP address
                  ⋮
           99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>■
```

4.3.6 Setting of remote host name

[Function]

Set the host name (node name) of the host machine.

[Input format]

Input up to 16 alphanumerics.
If not restricting the host machine, input only ")". Normally, input ")".

[Input example]

```
              ⋮
         99. EXIT
-------------------------------------------------------------------------------------
FUNCTION NO. >>7)                                          Select function No. 7

REMOTE HOST NAME              >XXXXXX                      Display current host name
NEW REMOTE HOST NAME          >REMOTEHOSTNAME)             Input new host name

------SETUP NETWORK INFORMATION----------------------------------  Display menu
          1.  LOCAL ETHERNET ADDRESS   XXXXXXXXXXXX
                ⋮
          7.  REMOTE HOST NAME         REMOTEHOSTNAME     Display new host name
                ⋮
         99.  EXIT
-------------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.7 Setting of remote port No.

[Function]

Set the port No. of the host machine.

[Input format]

Input 4-digit hexadecimal code.

If not restricting the host machine, input “0”. Normally, input “0”.

[Input example]

```
              ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>8)                                          Select function No. 8

REMOTE PORT NO.                >XXXX                       Display current port No.
NEW REMOTE PORT NO.            >0123)                      Input new port No.

------SETUP NETWORK INFORMATION----------------------------------- Display menu
          1. LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
               ⋮
          8. REMOTE PORT NO.           0123               Display new port No.
               ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

4.3.8 Setting of router address

[Function]

Set IP address of router. This setting is required when connecting to host machine through router.

[Input format]

Input 8-digit hexadecimal code.
If routing is not required, input “0”.

[Input example]

```
            ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>9)                                        Select function No. 9

ROUTER ADDRESS                >XXXXXXXX                  Display current router address
NEW ROUTER ADDRESS            >12345678)                 Input new router address

------SETUP NETWORK INFORMATION----------------------------------   Display menu
          1. LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
               ⋮
          9. ROUTER ADDRESS            12345678          Display new router address
               ⋮
         99. EXIT
-------------------------------------------------------------------------------
FUNCTION NO. >>■
```

4.3.9 Setting of subnet address mask

[Function]

Set the subnet address mask field.

[Input format]

Input “1” as an 8-digit hexadecimal to indicate the subnet address location.
If not setting a subnet address mask, input “0”.

[Input example]

The following example shows input for subnet recognition of the higher 24 bits and host recognition of the lower 8 bits of IP address.

```
              ⋮
        99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>10)                                          Select function No. 10

SUBNET ADDRESS MASK              >XXXXXXXX                  Display current subnet address mask
NEW SUBNET ADDRESS MASK          >FFFFFF00)                 Input new subnet address mask

------SETUP NETWORK INFORMATION----------------------------------- Display menu
         1.  LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
               ⋮
        10.  SUBNET ADDRESS MASK       FFFFFF00             Display new subnet address mask
               ⋮
        99.  EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>■
```

4.3.10 Setting of hub link

[Function]

Set hub link on/off.

[Input format]

Input “1” to set the hub link to “ON”, and input “0” to set the hub link to “OFF”.
If a number other than “0” is input, it is regarded as “1”.

[Input example]

```
                ⋮
          99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>11)                                                  Select function No. 11

HUB LINK FLG (ON=1/OFF=0)          >000                             Display current hub link status
NEW HUB LINK FLG (ON=1/OFF=0)      >1)                              Input new hub link

------SETUP NETWORK INFORMATION----------------------------------   Display menu
          1.  LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
               ⋮
         11.  HUB LINK (ON=1/OFF=0)          1                     Display new hub link status
               ⋮
         99.  EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>■
```

4.3.11 Exit

[Function]

Exit the network information setting menu and update the setting value to the contents of EEPROM.

[Input format]

Input either S, Q, or C.

S: Write set network information to EEPROM and exit menu.

Q: Exit menu without writing set network information to EEPROM.

C: Continue setting network information. Then, return to menu.

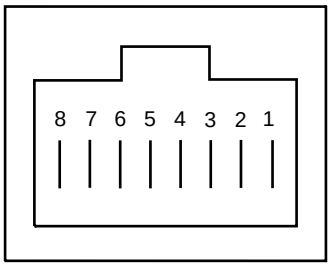
[Input example]

```
              ⋮
         99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>99)                                          Select function No. 99

Save & quit / Quit / Continue    >S)                        Write network information to EEPROM

-- Please reset --                                          Press reset switch to restart

              ⋮
         99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>99)                                          Select function No. 99

Save & quit / Quit / Continue    >Q)                        Exit without writing network information
                                                            to EEPROM
              ⋮
         99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >>99)                                          Select function No. 99

Save & quit / Quit / Continue    >C)                        Continue setting network information

------SETUP NETWORK INFORMATION----------------------------- Display menu
          1. LOCAL ETHERNET ADDRESS    XXXXXXXXXXXX
              ⋮
         99. EXIT
-------------------------------------------------------------------------------------------
FUNCTION NO. >> ■
```

CHAPTER 5 CONNECTORS

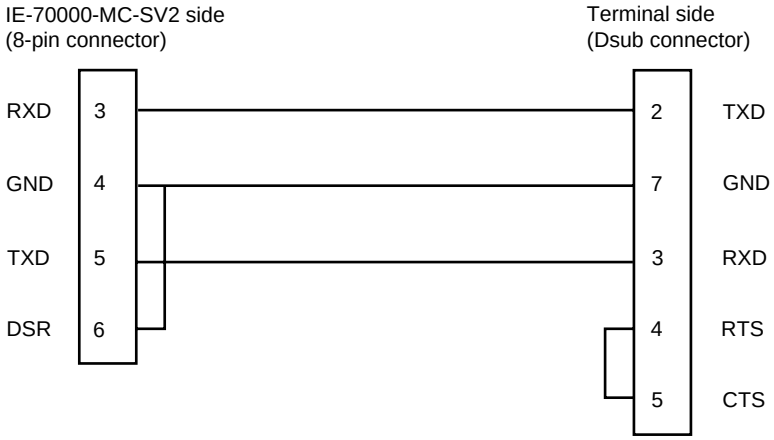
This chapter describes the connection of the IE-70000-MC-SV2.

5.1 10BASE-T Connector



1	TD+	Output
2	TD–	Output
3	RD+	Input
6	RD–	Input

5.2 RS-232C Connector



Settings

Interface	RS-232C
Transmission speed	9600 bps
Data length	8 bits
Parity check	None
Stop bit	2 bits
XON/XOFF	None
Local echo	None
Return key input	Transmission of CR code
At LF code reception	Line feed

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