FUJITSU SEMICONDUCTOR
CONTROLLER MANUAL

CM42-00406–1E

F²MC FAMILY MICROCONTROLLER EMULATOR

MB2140 SERIES MAIN UNIT (MB2141A) HARDWARE MANUAL

FUJITSU

F^{2}MC–FAMILY MICROCONTROLLER EMULATOR
MB2140 SERIES MAIN UNIT (MB2141A)
HARDWARE MANUAL

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Preface

This manual describes the MB2140 Series Main Unit (MB2141A) which is an application of the F^2MC Family microcontroller.

The main unit operates as an emulator when connected to an emulation pod.

This manual is composed of:

Chapter 1 Product Handling

Describes product and handling

Read this chapter thoroughly before using the main unit.

Chapter 2 Product Description

Describes hardware configuration of main unit and names of emulator components

Chapter 3 Connections

Describes connecting main unit

Read this chapter before turning on the power.

Chapter 4 Messages

Describes messages indicated by LEDs on main unit

Reference manual:

MB2142-01 LAN Adapter User's Manual

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1. PRODUCT HANDLING

This chapter describes the product and its handling.

1.1 PACKAGE CHECK

Check the package for the following parts before using the main unit.

- Main unit: 1
- AC power cable: 1
- Pod interface cable A: 1
- Pod interface cable B: 1
- Pod interface cable C: 1

1.2 OPTIONS

The main unit has the options listed in NO TAG. Purchase the options as required.

Table 1-1 Options

Name	Model
Emulation pod	See Note.
Test unit	
Communication adapter (LAN adapter 10BASE2)	MB2142-01
Communication adapter (LAN adapter 10BASE-T)	MB2142-02
Parallel communication adapter (Centronics cable)	MB2142-03

Note: The main unit cannot operate by itself. It requires an emulation pod. Use an emulation pod designed for your MCU.

1.3 PRECAUTIONS

Take the following precautions when using the main unit.

- Turn off the power before connecting/disconnecting cables.
- Hold the case/connector when disconnecting a cable.
- Never touch any connector pins to avoid a dielectric breakdown.
- Do not obstruct the ventilation holes.
- Install and use the main unit according to the ***User's Manual***.

1.4 STORAGE

Take the following precautions when storing the main unit.

- Do not drop the main unit in storage.
- Do not expose the main unit to direct sunshine, high temperature and high humidity. Also, keep it condensation free.
- The main unit uses many electronic parts. Avoid storing it where it may be exposed to strong electric or magnetic fields for long periods.

NO TAG lists operating and storage temperature and humidity.

Table 1-2 Operating and Storage Environments

	Temperature	Humidity
Operating	+5° to + 40°C	30 to 80% (No Condensation)
Storage	–20° to + 70°C	20 to 90% (No Condensation)

2. PRODUCT DESCRIPTION

2.1 SYSTEM CONFIGURATION

The main unit operates as an emulator when connected to an emulation pod (pod).

Remember that the main unit cannot operate by itself. A host computer is connected to the main unit for control.

Figure 2.1 shows the hardware system configuration of the main unit.

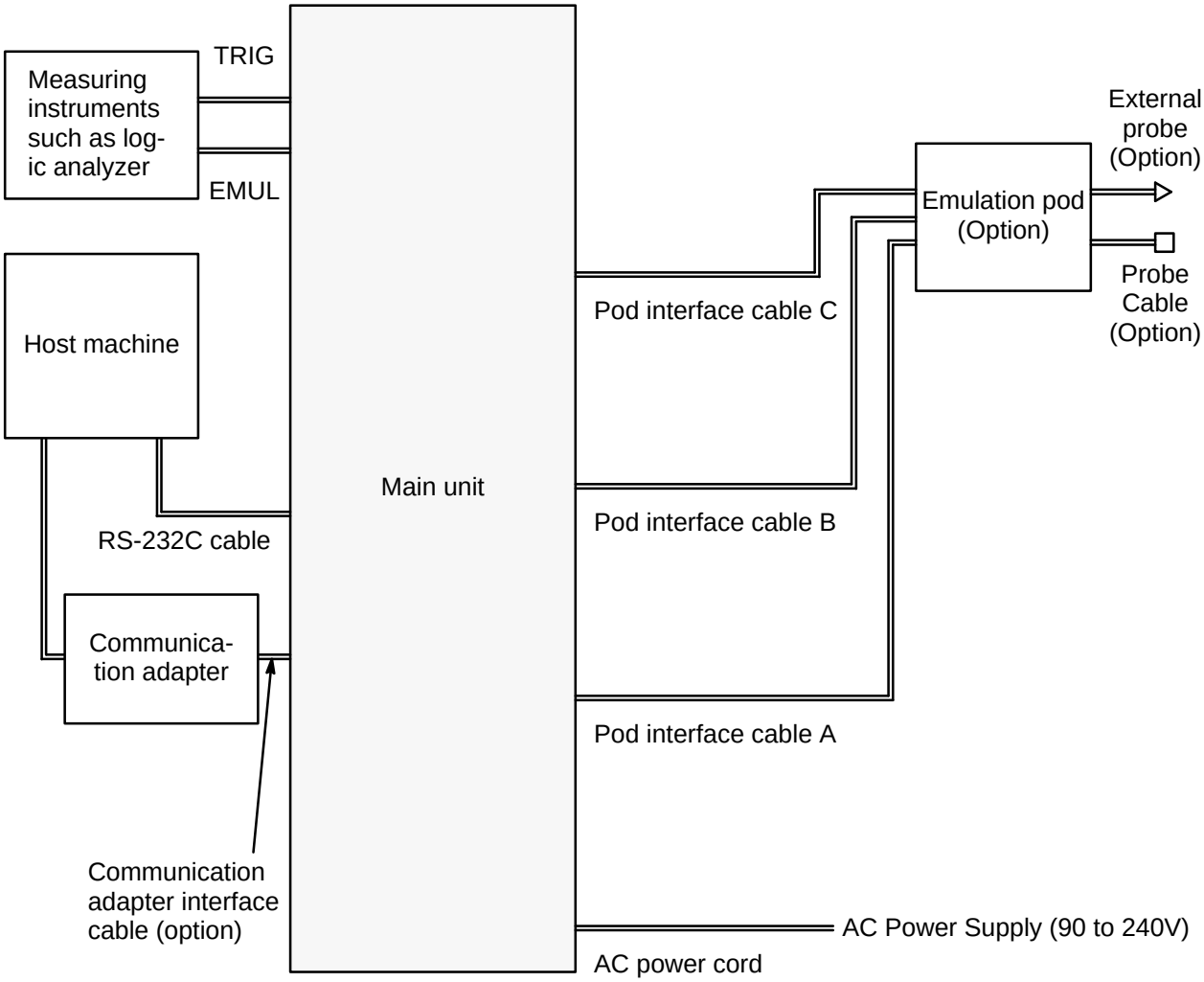


Fig. 2.1 System Configuration

2.2 APPEARANCE AND NAMES OF COMPONENTS

This section describes the names of components. For more information on connections, read Chapter 3.

Figures 2.2 and 2.3 show the appearance of the main unit and the names of components, respectively.

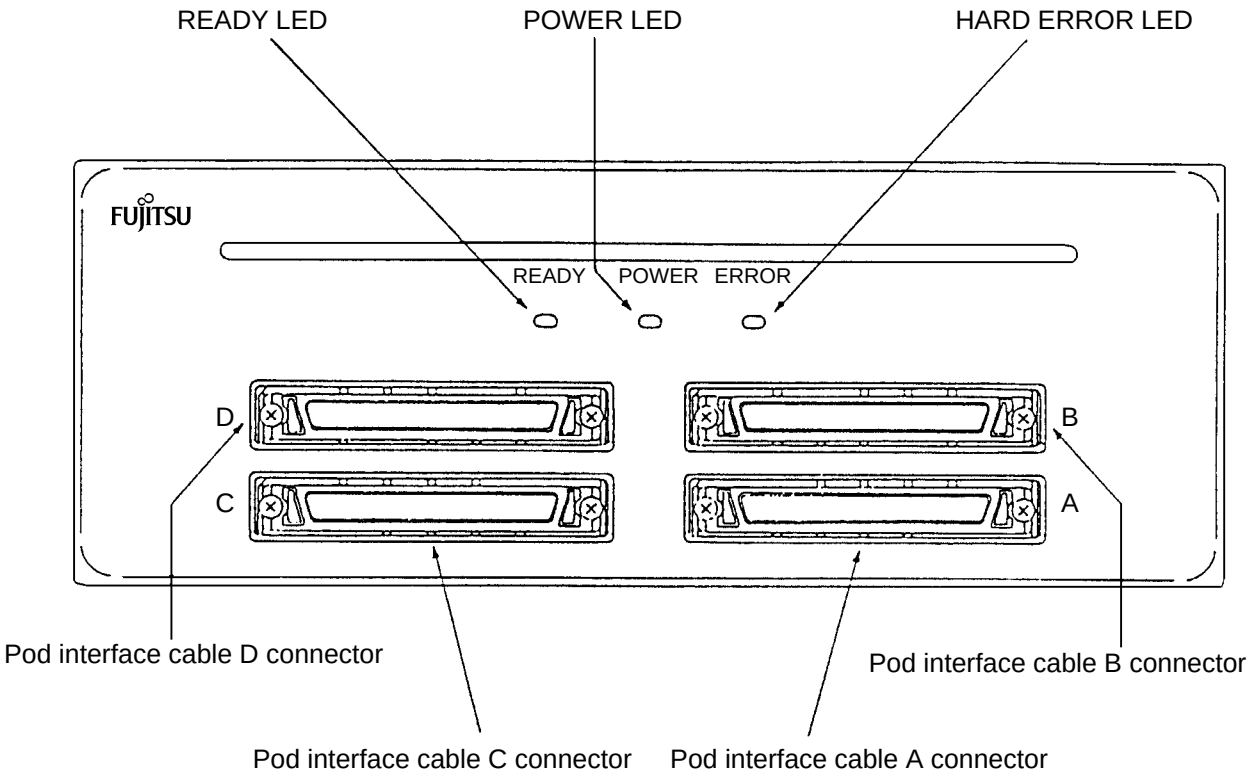


Fig. 2.2 Appearance of Main Unit (Front View)

READY LED . . . . . Lit when both main unit and host computer ready for communication

POWER LED . . . . . Lit when power on

HARD ERROR LED . . . . . Lit when hardware error occurred

Pod interface cable A to D connectors . . . Connectors for connecting pod (The D connector is an extension connector used to connect a pod with a D connector).

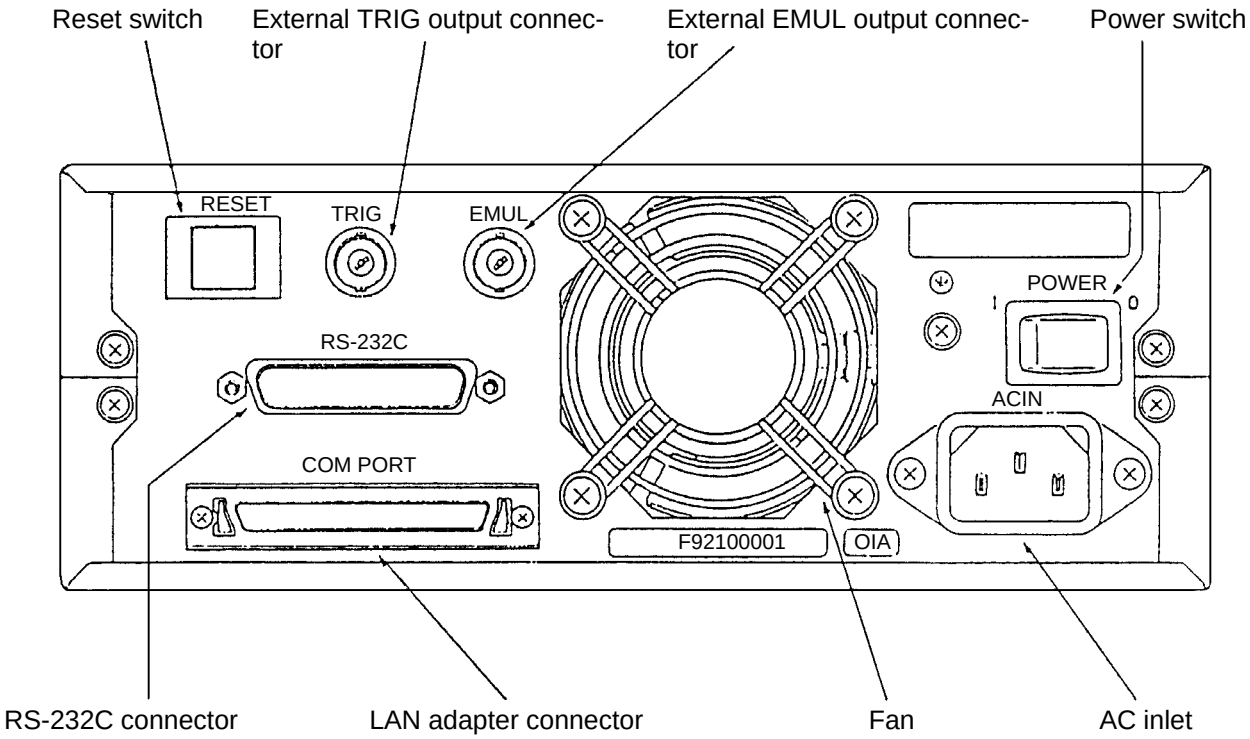


Fig. 2.3 Appearance of Main Unit (Rear View)

Reset switch	Resets system
External TRIG output connector	Sends emulator event trigger signals to outside. H level (CMOS level) is sent during one bus cycle of the MCU when the trigger conditions are met.
External EMUL output connector	Sends H level (CMOS level) during emulation
Power switch	Turns power on
RS-232C connector	Connects RS-232C port
LAN adapter connector	Connects LAN adapter
AC inlet	AC input

2.3 SPECIFICATIONS OF MAIN UNIT

NO TAG lists the specifications of the main unit.

Table 2-1 Specifications of Main Unit

Item	Specifications
Name	MB2140 series main unit
Model	MB2141A
Power supply	85 to 264 Vac, 3.5 A, 50/60 Hz
Operating temperature	5° to 40°C
Operating humidity	30 to 80% (No condensation)
Outside dimensions	210 mm (W) × 78 mm (H) × 297 mm (D) (Note 1)
Weight	2.9 kg (Note 2)

Notes:

1. Except protrusions
2. Except pod interface cables and AC power cable

2.4 SPECIFICATIONS OF POD INTERFACE CABLE

NO TAG and 2-3 list the components and specifications of the pod interface cable, respectively. Figure 2.4 shows its dimensions To connect the main unit and pod, see 3.1.

Table 2-2 Components of Pod Interface Cable (per cable)

Component name	Remarks
Connector FCN-237R068-G/E × 2	Fujitsu
Cover FCN-230C068-D/E × 2	Fujitsu
Rivet C630-5296-X801 × 4	Fujitsu

Table 2-3 Specifications of Pod Interface Cable

Item		Description
Rated current		1 A (dc)
Temperature	Operating	–10° to +60°C
	Storage	–10° to +60°C
Weight		180 g each

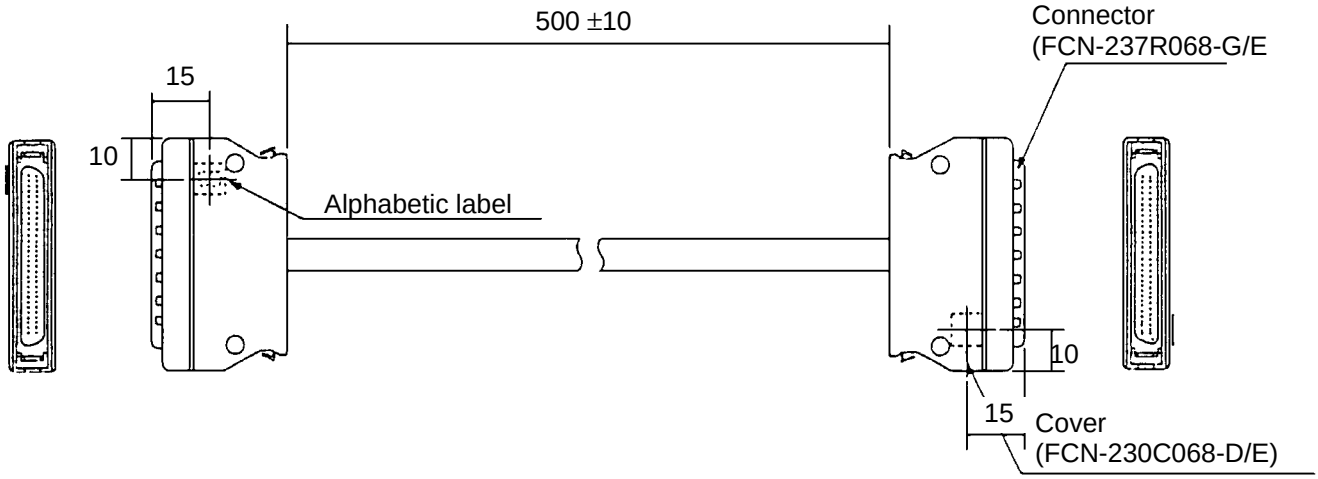


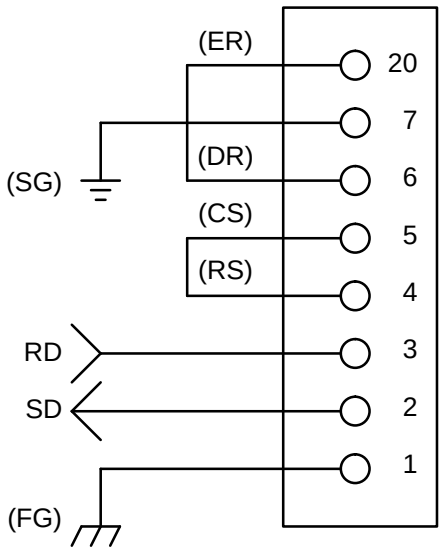
Fig. 2.4 Dimensions of Pod Interface Cable A, B, C

2.5 SPECIFICATIONS OF RS-232C PORT

The main unit has an RS-232C port. NO TAG lists the specifications of the RS-232C port and Figure 2.5 shows the connector circuit diagram.

Table 2-4 Specifications of RS-232C Port

Item	Specifications
Connection type	DCE
Baud rate	4800, 9600, 19200 [bps]
Data bit length	8 bits
Parity bit	None
Stop bit length	1 bit
X control	None



Note: The main unit only uses the signal lines illustrated at the left.

Fig. 2.5 RS-232C Port Circuit Diagram

3. CONNECTIONS

This chapter describes connecting the main unit when it is not switched on. For the names of the components, see 2.2.

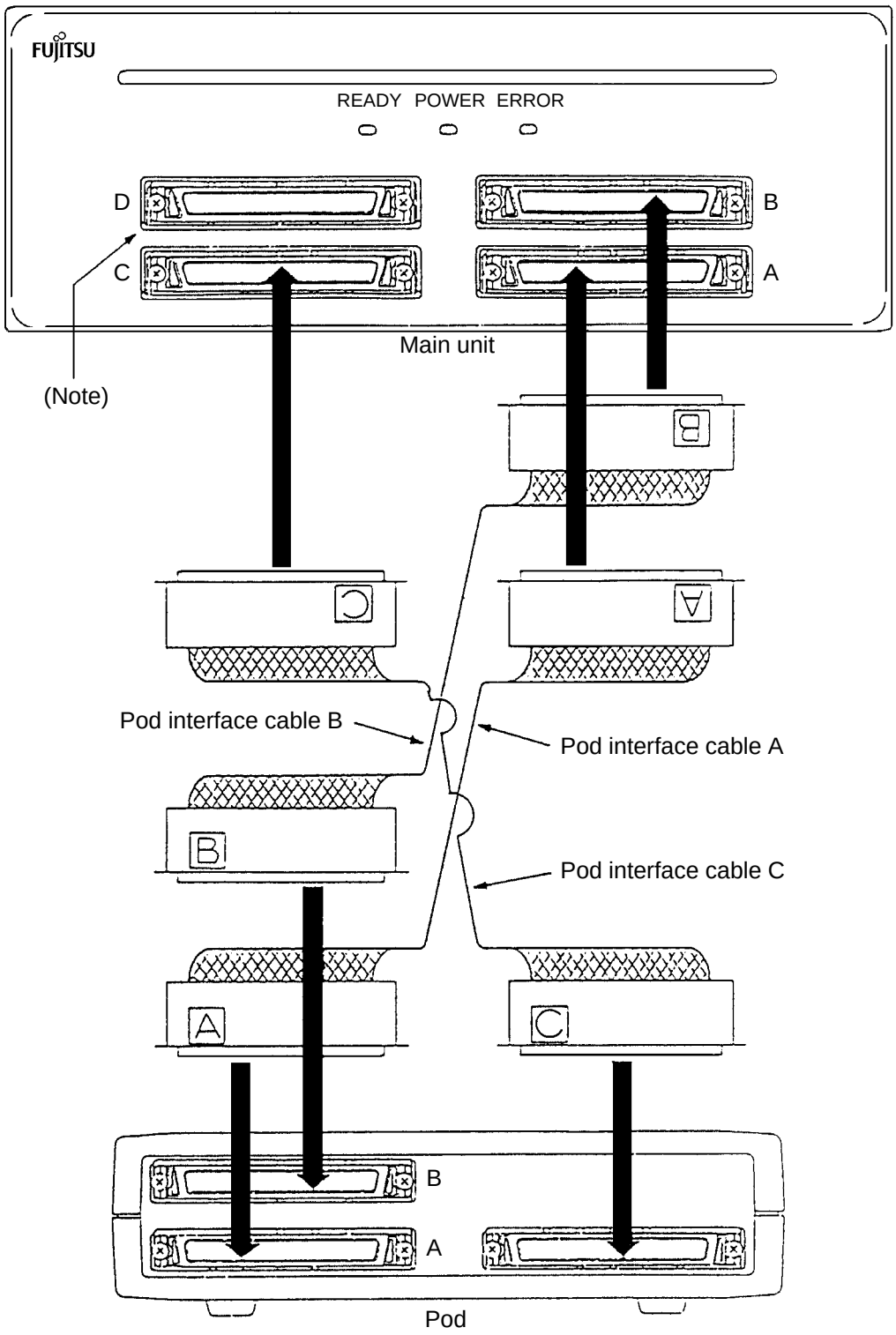
Cautions:

- Turn off the power when connecting/disconnecting cables; otherwise, the main unit will be damaged.
- When disconnecting a cable, hold its case or connector; otherwise, the cable may break.

3.1 CONNECTING EMULATION POD

Connect pod interface cables to the main unit and emulation pod as shown in Figure 3.1.

The connector covers of the pod interface cables A, B and C are riveted at different locations to prevent a connection error. Also, a guide is installed in the connectors of the main unit. Match the alphabetic marks of the pod interface cables with those of the main unit and pod.



Note: The D connector is an extension connector used to connect a pod with a D connector.

Fig. 3.1 Connection of Pod Interface Cables

3.2 CONNECTION TO HOST COMPUTER

Connect the main unit to the host computer as shown in Figure 3.2.

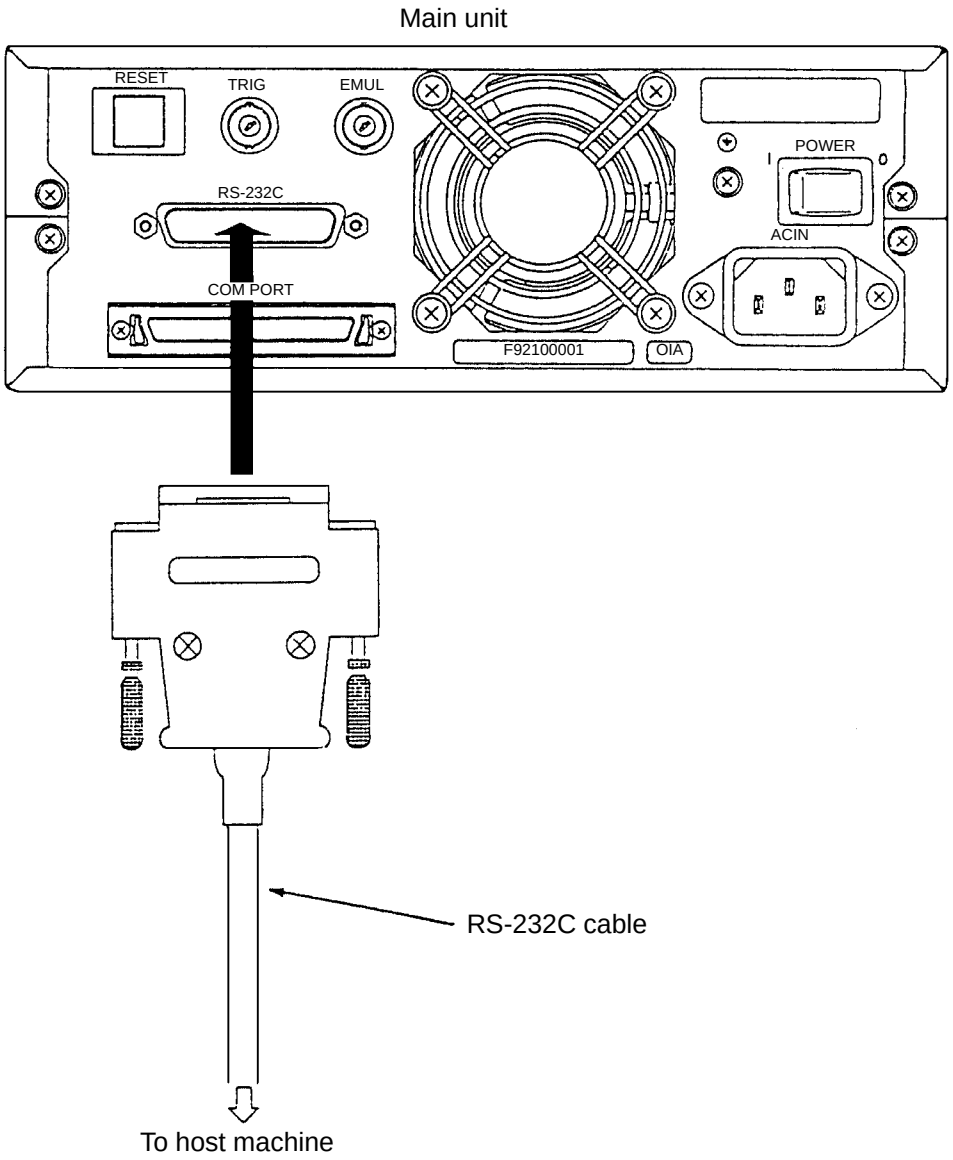


Fig. 3.2 Connection via RS-232C

4. MESSAGES

Three types of front-panel LEDs on the main unit indicate the following.

- POWER LED (Orange) (Silk-printed **POWER**): The power is on.
- READY LED (Green) (Silk-printed **READY**):

  <ON> Both the main unit and host computer are ready for communication.

  <Blinking> The main unit is communicating with the host computer.
- HARD ERROR LED (Red) (Silk-printed **ERROR**): A hardware error has occurred.

> Caution: A lit HARD ERROR LED means repair is required.

APPENDIX SPECIFICATIONS OF LAN ADAPTER

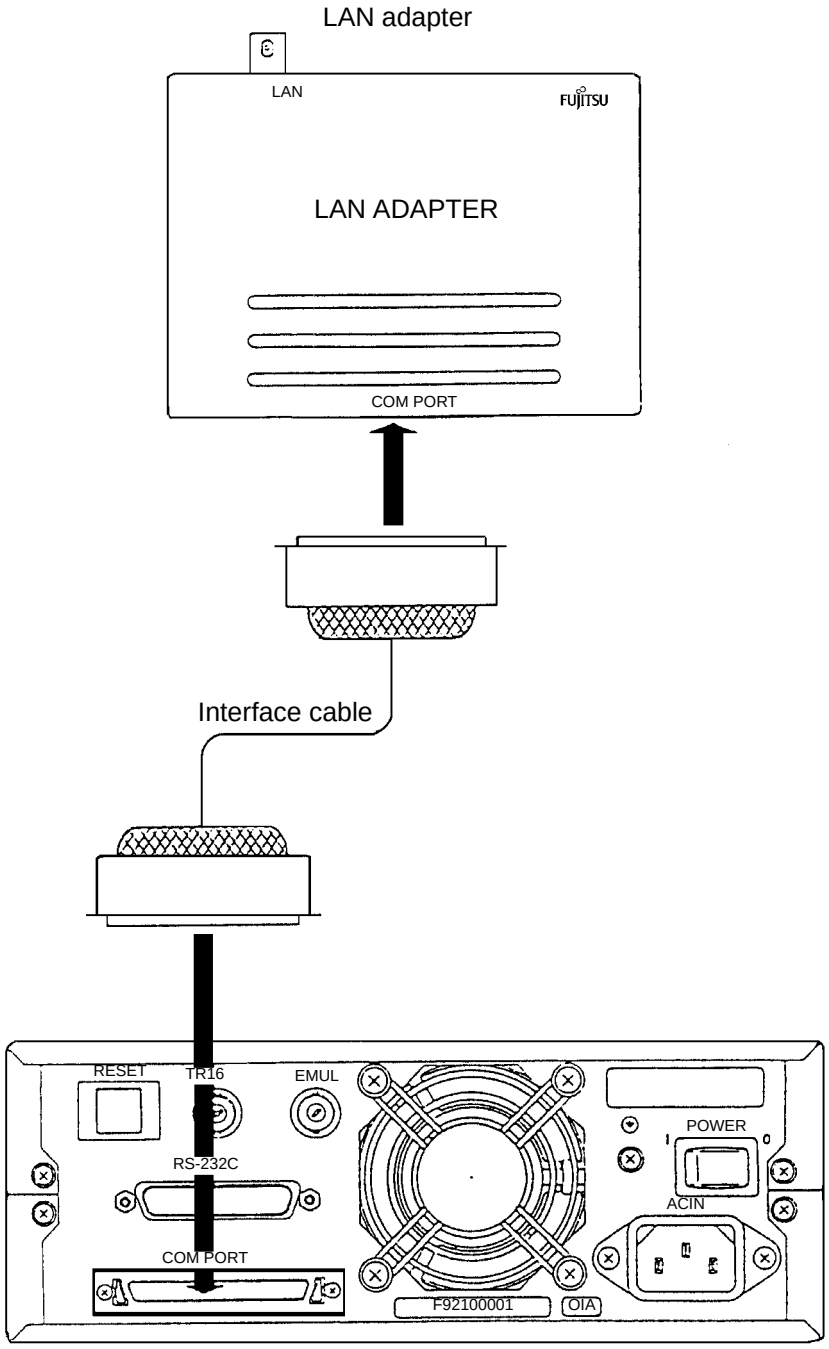
The main unit has a LAN adapter option for connection to the communication adapter connector.

Appendix Table 1 lists the specifications of the LAN adapter.

Appendix Table 1 Specifications of LAN Adapter

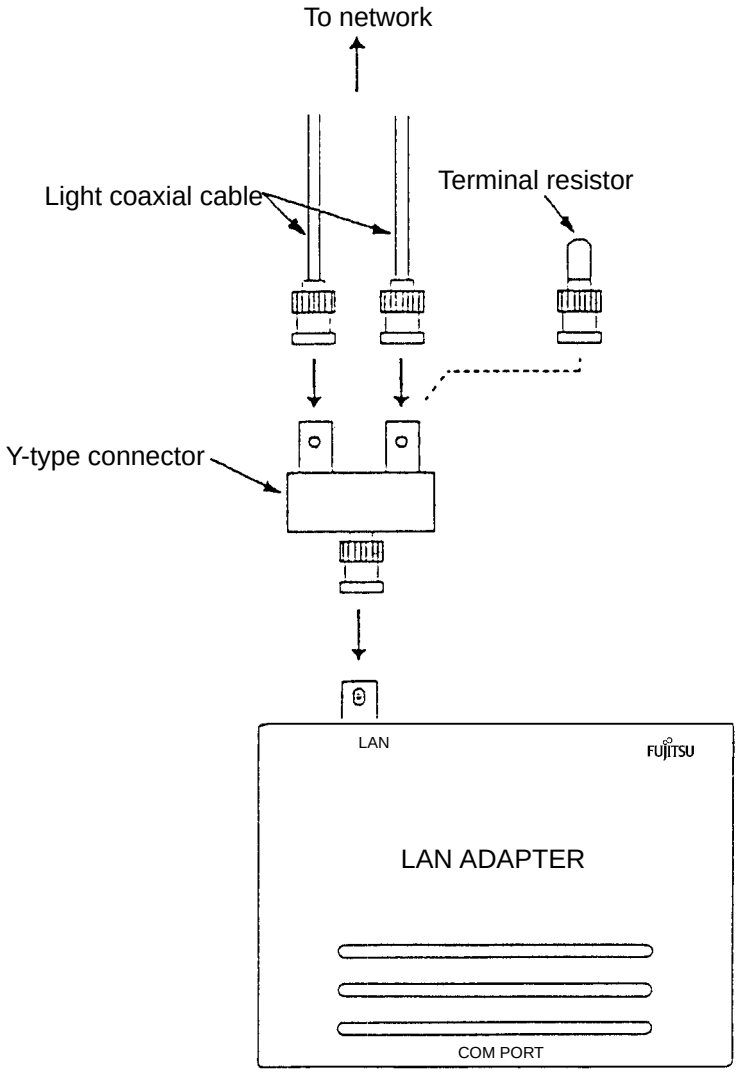
Item	Specifications
Communication type	TCP/IP
LAN connector	BNC connector (10BASE2)
IP address	Variable
Port address	Variable
Ethernet address	Global address/local address
Ethernet global address	Fixed value (IEEE registered)
Ethernet local address	Variable

Connect the LAN adapter to the main unit via the interface cable (LAN adapter accessory) as shown in Appendix Figure 1.



Appendix Figure 1 Connecting LAN Adapter to Main Unit

Connect the LAN connector of the LAN adapter to a network as shown in Appendix Figure 2. Use a light coaxial cable, a terminator and a Y-type connector which are sold commercially.



Appendix Figure 2 Connecting LAN Adapter to Network

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