



2000 No.132E

NEW PRODUCT RELEASE

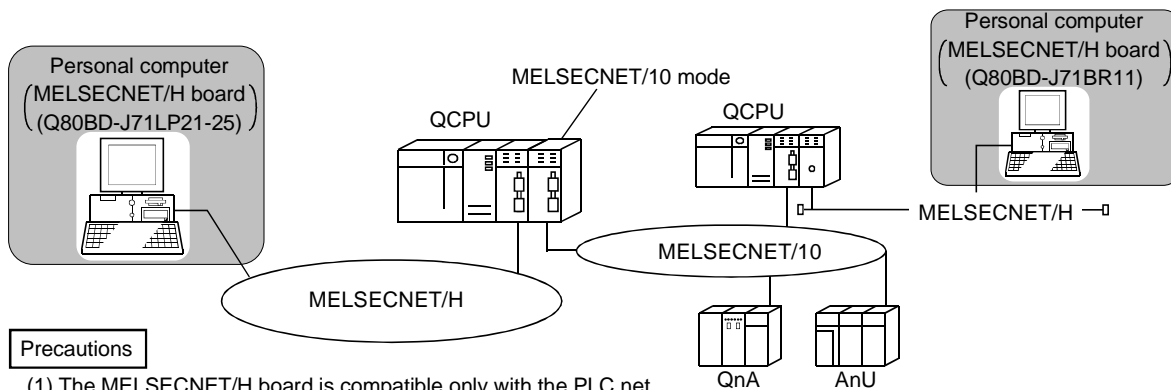
GENERAL-PURPOSE  
PROGRAMMABLE LOGIC CONTROLLER

**Type Q80BD-J71LP21-25 MELSECNET/H Interface Board**

**Type Q80BD-J71BR11 MELSECNET/H Interface Board**

**New!**

*This product lets you connect your personal computer with the MELSECNET/H or MELSECNET/10 network system as a control station/normal station.*



#### Precautions

- (1) The MELSECNET/H board is compatible only with the PLC net.  
It is not compatible with the remote I/O net.
- (2) This product does not allow to use the MELSECNET/H board as a relay station.

#### What is the MELSECNET/H network system?

The MELSECNET/H network system is an improved version of the MELSECNET/10 network system that provides functions and performance required to control manufacturing lines by connecting multiple PLCs and personal computers.

The MELSECNET/H network system has the optical loop system (communication speed: 10Mbps, 25Mbps) and coaxial bus system (communication speed: 10Mbps), allowing large amounts of data to be exchanged at a high speed.

## [Features]

- (1) This product allows your personal computer to be incorporated into a MELSECNET/H or MELSECNET/10 network system.

Mounting a MELSECNET/H board on your personal computer will let the personal computer work as the control station or normal station of a MELSECNET/H network system, which was not possible with the MELSECNET/10 board.

It also lets your personal computer connect with a MELSECNET/10 network system by setting the MELSECNET/10 mode using the MELSECNET/H utility.

MELSECNET/H board	Compatible network
Q80BD-J71LP21-25	25Mbps optical loop system ... MELSECNET/H mode 10Mbps optical loop system ... MELSECNET/H mode, MELSECNET/10 mode
Q80BD-J71BR11	10Mbps coaxial bus system ... MELSECNET/H mode, MELSECNET/10 mode

- (2) Incorporation of PCI bus eliminates bothersome switch settings.

It is possible to use a personal computer by mounting a MELSECNET/H board and installing the software package.

You can easily set various settings such as the channel No., station No., mode setting and transmission speed using the MELSECNET/H utility.

- (3) Compatible with conventional MELSECNET/10 board in regard to operability

- (a) Upward compatibility of user applications

For the MELSECNET/H board, the number of boards that are possible to be mounted on the personal computer (number of boards combining MELSECNET/H boards and MELSECNET/10 boards), the channel numbers, etc., are the same as those for the conventional MELSECNET/10 board. So, it is possible to utilize user applications for the MELSECNET/10 board.

- (b) Compatible with GX Developer and Communication Support Tool

It is possible to access the PLC CPU from the personal computer with MELSECNET/H board, the GX Developer (SW6D5C-GPPW(-E) or later) and Communication Support Tool (SWnD5F-CSKP(-E)).

- (4) QCPU (Q mode) multiple PLC system accesse.

It allows to access to each QCPU (Q mode) in multiple PLC systems by designating the logical station No. via the MELSECNET/H utility.

- (5) Drivers compatible with each OS are available.

The SW0DNC-MNETH-B software package contains both the Japanese Version and English Version, which facilitates system configuration to support the user's environment.

Select either the Japanese version or English Version when installing SW0DNC-MNETH-B.

Compatible OS : Microsoft Windows 2000 Professional Operating System (English and Japanese Version)

Microsoft Windows 95 Operating System (English and Japanese Version)

Microsoft Windows 98 Operating System (English and Japanese Version)

Microsoft Windows NT Operating System Workstation Version 4.0 (English and Japanese Version)

- (6) User programming functions.

By using Microsoft Visual Basic or Microsoft Visual C++ compatible functions, it is possible to control the PLC CPU remotely, read/write devices, and create user applications easily.

## [Performance specifications]

The following table lists the performance specifications of the MELSECNET/H board.

Item	Specifications																									
	Q80BD-J71LP21-25			Q80BD-J71BR11																						
	MELSECNET/H optical loop system (10Mbps)		MELSECNET/H optical loop system (25Mbps)	MELSECNET/H coaxial bus system (10Mbps)																						
Maximum number of link points per network	LX/LY	8192 points																								
	LB	16384 points (During MELSECNET/10 mode: 8192 points)																								
	LW	16384 points (During MELSECNET/10 mode: 8192 points)																								
Maximum number of link points per station	((LY+LB)/8+(2xLW)) ≤ 2000 bytes																									
Communication speed <sup>*1</sup>	10Mbps		25Mbps		10Mbps																					
Number of connected stations per network	64 stations (control station: 1, normal station: 63)			32 stations (control station: 1, normal station: 31)																						
Connection cable	Optical fiber cable			Coaxial cable																						
Overall distance per network	<table border="1"> <thead> <tr> <th>Cable name</th> <th>Overall distance</th> <th>Distance between stations</th> </tr> </thead> <tbody> <tr> <td>SI cable</td> <td rowspan="3">30km (98430 ft.)</td> <td>500m<sup>2</sup> (1640.5 ft.)</td> </tr> <tr> <td>H-PCF cable</td> <td>1km (3281 ft.)</td> </tr> <tr> <td>QSI cable</td> <td></td> </tr> </tbody> </table>			Cable name	Overall distance	Distance between stations	SI cable	30km (98430 ft.)	500m <sup>2</sup> (1640.5 ft.)	H-PCF cable	1km (3281 ft.)	QSI cable		<table border="1"> <thead> <tr> <th>Cable name</th> <th>Overall distance</th> <th>Distance between stations</th> </tr> </thead> <tbody> <tr> <td>SI cable</td> <td rowspan="3">30km (98430 ft.)</td> <td>200m (656.2 ft.)</td> </tr> <tr> <td>H-PCF cable</td> <td>400m (1312.4 ft.)</td> </tr> <tr> <td>QSI cable</td> <td>1km (3281 ft.)</td> </tr> </tbody> </table>			Cable name	Overall distance	Distance between stations	SI cable	30km (98430 ft.)	200m (656.2 ft.)	H-PCF cable	400m (1312.4 ft.)	QSI cable	1km (3281 ft.)
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Maximum number of networks	239																									
Maximum number of groups	32 (During MELSECNET/10 mode: 9)																									
Transmission path format	Duplex loop			Single bus																						
Communication method	Token ring method			Token bus method																						
Synchronization method	Frame synchronization method																									
Coding method	NRZI coding (Non Return to Zero Inverted)			Manchester coding																						
Transmission format	HDLC compliant (frame type)																									
Error control method	Retry with CRC (X <sup>16</sup> +X <sup>12</sup> +X <sup>5</sup> +1) and overtime																									
RAS functions	<ul style="list-style-type: none"> <li>• Loop back at error detection and cable disconnection (only optical loop system)</li> <li>• System down prevention with control station transfer</li> <li>• Error detection with special relays and special registers, etc.</li> </ul>																									
Transient transmission	N:N communication																									
Special cyclic transmission	Low-speed cyclic transmission																									
Number of mounted boards	Maximum 4 boards <sup>*4</sup>																									
Mounting slot	PCI bus slot (half-size)																									
Occupied slot	1 slot																									
5VDC internal current consumption	0.46 A			0.67 A																						
Weight	0.10 kg (0.22 lb)			0.11 kg (0.24 lb)																						

\*1: Use the MELSECNET/H utility to set the Q80BD-J71LP21-25 communication speed.

\*2: As for the conventional optical fiber cable (A-2-@), use the L type as having the distance between stations of 500 m (1640.5 ft.), and the H type as having the distance between stations of 300 m (984.3 ft.).

\*3: There is a restriction on the length of the cable between stations depending on the number of stations connected.

\*4: The number of mounted boards is the total of MELSECNET/H boards (Q80BD-J71LP21-25/Q80BD-J71BR11) and MELSECNET/10 boards (A70BD(E)-J71QLP23(G/GE)/A70BD(E)-J71QBR13/A70BD(E)-J71QLR23).

## [List of functions]

The following table lists the functions of the MELSECNET/H board.

Item		Outline of function
Cyclic transmission function		Exchanges data periodically between stations in the same network using the link devices (LB/LW/LX/LY).
Transient transmission function		Exchanges data N:N (transient transmission) with the station over eight network systems through the network unit as a relay station using the routing function.
RAS functions	Automatic return function	When a station that has been disconnected due to a data link error returns to the normal state, it returns automatically to the data link and resumes the data link.
	Control station shift function	Sets another normal station as a sub-control station and continues the data link even if the control station (the station for which common parameters are set) is down.
	Control station return control function	Eliminates the network down time by correcting the error cause of the control station and joining in the network as a normal station.
	Loop back function *1	If an error occurs in the transmission path, cuts off the erroneous section by switching the transmission path from the Forward loop to the Reverse loop or vice versa, or by performing loopback, and continues normal transmission between the stations capable of exchanging data.
	Diagnosis function	Verifies the network line status, MELSECNET/H board setting status and hardware status.
Multiplex transmission function *1		Performs high-speed communication with a duplex transmission path (Forward loop and Reverse loop) in the optical loop system.

\*1: Compatible only with the optical loop system.

## [Data link functions]

Use the following functions from the user application to access the data in the PLC.

Function name	Description
mdOpen	Opens a communication line.
mdClose	Closes a communication line.
mdSend	Performs batch write of devices.
mdReceive	Performs batch read of devices.
mdRandW	Writes devices randomly.
mdRandR	Reads devices randomly.
mdDevSet	Sets a bit device.
mdDevRst	Resets a bit devices.
mdTypeRead	Reads the type of PLC CPU.
mdControl	Remote RUN/STOP/PAUSE.
mdInit	Refreshes the PLC device address.

Function name	Description
mdBdRst	Resets the board itself.
mdBdModSet	Sets the board itself.
mdBdModRead	Reads the board itself.
mdBdLedRead	Reads the LED information of the board itself.
mdBdSwRead	Reads the switch status of the board itself.
mdBdVerRead	Reads the version information of the board itself.
mdSend *1	Sends data (SEND function).
mdReceive *1	Receives data (RECV function).

\*1:Q/QnA dedicated instruction

## [Utility]

The MELSECNET/H utility has various utilities to connect the MELSECNET/H board to the MELSECNET/H or MELSECNET/10 network system and monitor the system.

### MELSECNET/H Utility

Menu	Details
Card list	Displays the hardware information set in the MELSECNET/H board, confirms and sets the channel No.
Card information	Displays and sets the various information of the MELSECNET/H board.
Loop monitor	Monitors the line status of the local station.
Each sta. status	Displays the communication status and loop status of each station.
Err history monitor	Displays the loop error, communication error and transient transmission error history.
Memory I/O test	Performs diagnosis between the MELSECNET/H board and personal computer.
Target	Sets the logical station No. for accessing multiple PLC systems.
Driver	Sets the MELSECNET/H board driver startup, the link device access method and various monitor times.
Version	Displays the MELSECNET/H board utility version.

## [System requirement]

The following table lists the system requirement of the MELSECNET/H board.

Item	Details
Personal computer	Personal computer with Pentium 133MHz or more, one or more PCI bus slot, and OS. <sup>*1</sup>
PCI bus specifications	5VDC, 32-bit bus, basic clock: 33MHz
OS	One of the following: Microsoft Windows 2000 Professional Operating System (English and Japanese version), Microsoft Windows 95 Operating System (English and Japanese version), Microsoft Windows 98 Operating System (English and Japanese version), Microsoft Windows NT Workstation Operating System Version 4.0 (English and Japanese version) <sup>*2</sup>
Programming language <sup>*3</sup>	One of the following: Microsoft Visual Basic 5.0 (English and Japanese version) <sup>*4</sup> , Microsoft Visual Basic 6.0 (English and Japanese version), Microsoft Visual C++ 5.0 (English and Japanese version) <sup>*4</sup> , Microsoft Visual C++ 6.0 (English and Japanese version)
Display	Resolution SVGA or more (recommended: 1024 x 768 dots)
Required memory	32MB or more
Open hard disk space	20MB or more
Disk drive	CD-ROM disk drive

\*1: This product does not work with multi-processor supported personal computers since the drivers are not compatible.

\*2: This product requires Service Pack 3 or later when Windows NT is used.

\*3: Use the user programs created in an English environment only in an English environment.

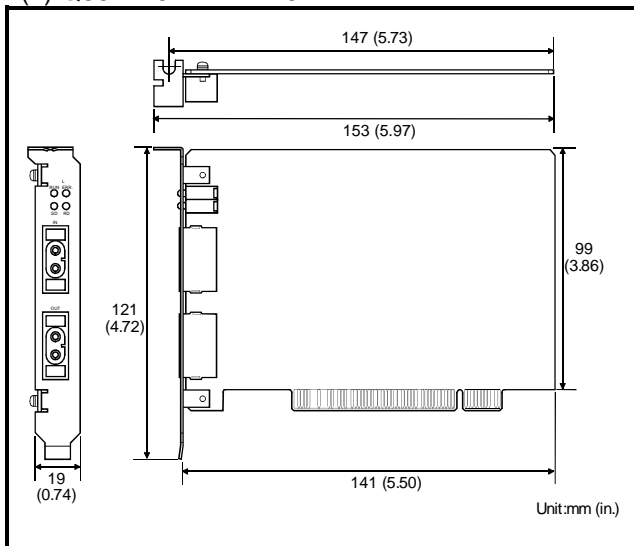
Use the user programs created in a Japanese environment only in a Japanese environment.

\*4: This product does not allow the use of Visual Basic 5.0 and Visual C++ 5.0 if the operating system is Windows 2000.

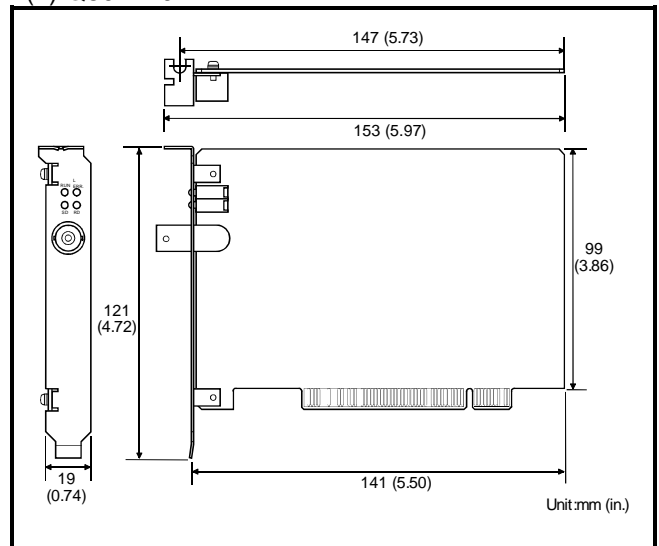
## [External dimensions]

The following figures show the external dimensions of the MELSECNET/H boards.

(1) Q80BD-J71LP21-25



(2) Q80BD-J71BR11



### [Standard price and product configuration]

Product name	Type	Type code	Remarks
Type Q80BD-J71LP21-25 MELSECNET/H Interface Board	Q80BD-J71LP21-25	1W6062	Q80BD-J71LP21-25 x 1 set CD-ROM (SW0DNC-MNETH-B) x 1 set Manual x 1 set Software license agreement x 1 copy
Type Q80BD-J71BR11 MELSECNET/H Interface Board	Q80BD-J71BR11	1W6061	Q80BD-J71BR11 x 1 set CD-ROM (SW0DNC-MNETH-B) x 1 set Manual x 1 set F-type connector x 1 connector Software license agreement x 1 copy

### [Manuals]

Manual name	Manual shipping state	IB/SH No.	Type code
MELSECNET/H Interface Board User's Manual (Hardware)	Enclosed with product	IB-0800154	13JT27
MELSECNET/H Interface Board User's Manual (For SW0DNC-MNETH-B)	Optional *1	SH-080128	13JR24

\*1: The CD-ROM of the software package also contains the data for the manual in PDF format.

(The CD-ROM also contains Acrobat Reader software that enables you to read the manual on a personal computer.)

Printed manual is also available for purchase.

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Country/Region	Sales office	Tel/Fax
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061	Tel : 1-847-478-2100 Fax : 1-847-478-0328
Brazil	MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda. Av. Rio Branco, 123-15 ,and S/1507, Rio de Janeiro, RJ CEP 20040-005, Brazil	Tel : 55-21-221-8343 Fax : 55-21-221-9388
Germany	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY	Tel : 49-2102-486-0 Fax : 49-2102-486-717
U.K	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Herts., AL10 8XB,UK	Tel : 44-1707-276100 Fax : 44-1707-278695
Italy	Mitsubishi Electric Europe B.V. Italian Branch Centro Dir. Colleoni, Pal. Perseo - Ingr.2 Via Paracelso 12, 20041 Agrate B., Milano, Italy	Tel : 39-039-6053301 Fax : 39-039-6053312
Spain	Mitsubishi Electric Europe B.V. Spanish Branch Pol. Ind. "Can Magi"- C/.Joan Buscalla, 2-4-A.C.420 08190 Sant Cugat del Valles, Barcelona, Spain	Tel : 34-935-653135 Fax : 34-935-891579
South Africa	MSA Manufacturing (Pty) Ltd. P O Box 39733 Bramley 201 8 Johannesburg, South Africa	Tel : 27-11-444-8080 Fax : 27-11-444-8304
Hong Kong	Ryoden International Ltd. 10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong	Tel : 852-2887-8870 Fax : 852-2887-7984
China	Ryoden International Shanghai Ltd. 3F Block5 Building Automation Instrumentation Plaza 103 Cao Bao Rd. Shanghai 200233 China	Tel : 86-21-6475-3228 Fax : 86-21-6484-6996
Taiwan	Setsuyo Enterprise Co., Ltd. 6F., No.105 Wu-Kung 3rd.RD, Wu-Ku Hsiang, Taipei Hsine, Taiwan R.O.C.	Tel : 886-2-2299-2499 Fax : 886-2-2299-2509
Korea	HAN NEUNG TECHNO CO.,LTD. 1F Dong Seo Game Channel Bldg., 660-11,Deungchon-dong Kangsec-ku, Seoul, Korea	Tel : 82-2-3668-6567 Fax : 82-2-3664-8335
Singapore	Mitsubishi Electric Asia Pte, Ltd. 307 ALEXANDRA ROAD #05-01/02, MITSUBISHI ELECTRIC BUILDING SINGAPORE 159943	Tel : 65-473-2480 Fax : 65-476-7439
Thailand	F. A. Tech Co.,Ltd. 898/28,29,30 S.V.CITY BUILDING,OFFICE TOWER 2,FLOOR 17-18 RAMA 3 ROAD,BANGKONGPANG,YANNAWA,BANGKOK 10120	Tel : 66-2-682-6522 Fax : 66-2-682-6020
Indonesia	P.T. Autoteknindo SUMBER MAKMUR JL. MUARA KARANG SELATAN BLOK A UTARA NO.1 KAV. NO.11 KAWASAN INDUSTRI/ PERGUDANGAN JAKARTA - UTARA 14440	Tel : 62-21-663-0833 Fax : 62-21-663-0832
India	Messung Systems Put,Ltd. Electronic Sadan NO:111 Unit No15, M.I.D.C BHOSARI,PUNE-411026	Tel : 91-20-7128927 Fax : 91-20-7128108
Australia	Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, PostalBag, No 2, Rydalmere, N.S.W 2116, Australia	Tel : 61-2-9684-7777 Fax : 61-2-9684-7245



**MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE:MITSUBISHI DENKI BLDG MARUNOUCHI TOKYO 100-8310 TELEX:J24532 CABLE MELCO TOKYO