MITSUBISHI

Mitsubishi PLC

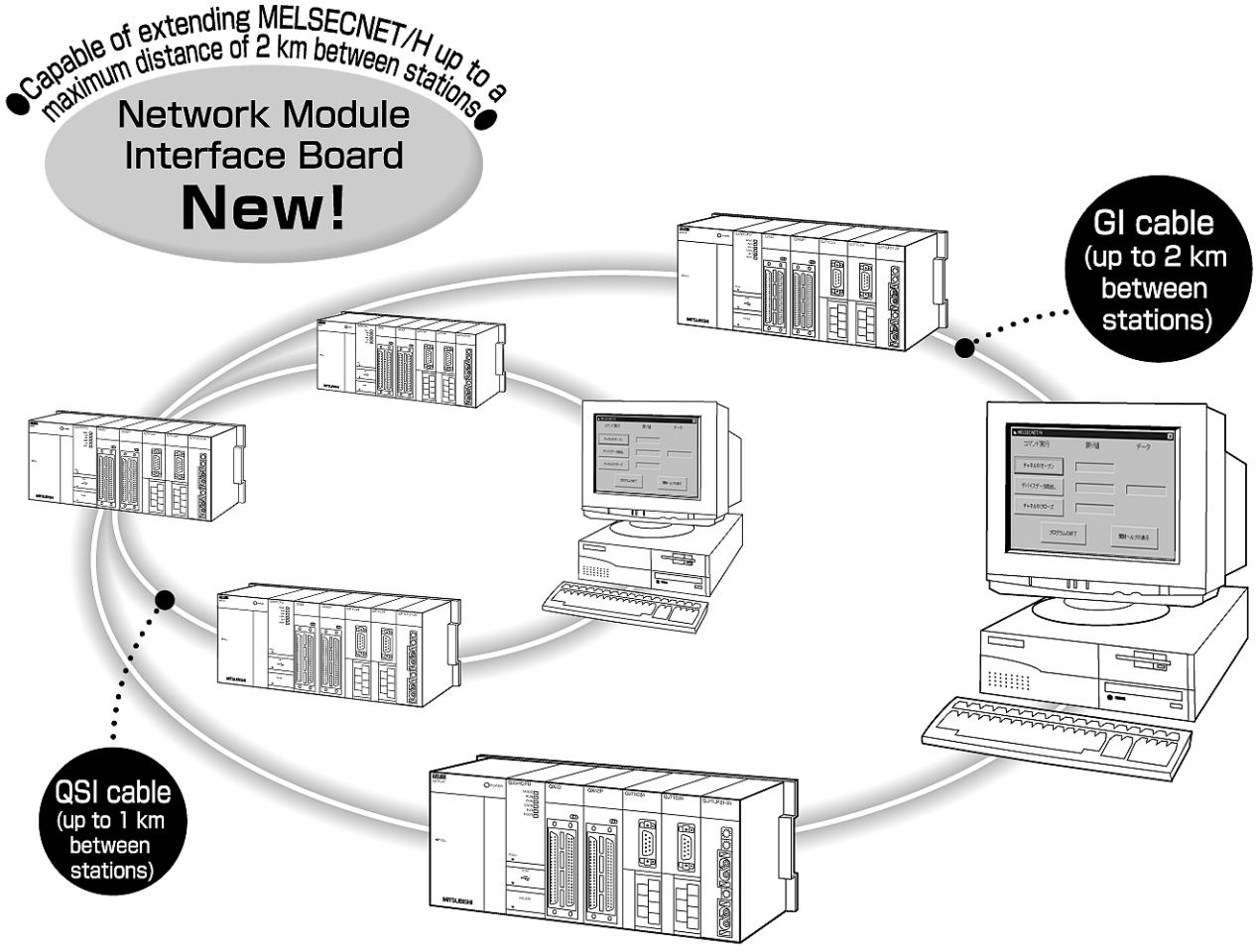
2001 No.144E

**NEW PRODUCT RELEASE**

# Type QJ71LP21G, QJ72LP25G, QJ71LP21GE and QJ72LP25GE MELSECNET/H Network Modules
# Type Q80BD-J71LP21G and Q80BD-J71LP21GE MELSECNET/H Interface Boards

## New!

New network modules and interface boards are available!
They can extend the distance between stations--between PLCs or between a PLC and a personal computer-- in the MELSECNET/H network system up to a maximum of 2 km with GI optical fiber cables!




Advantage: A long-distance network system can be constructed without relay stations.

# 1. QJ71LP21G, QJ72LP25G, QJ71LP21GE, QJ72LP25GE

## [Features]

(1) Using of GI optical fiber cable with the above new modules provides maximum distance of 2 km between stations, whereas the previous modules could achieve only 1 km.

(2) Data from conventional systems can be utilized.
The performances and specifications of the modules are the same as those of the former types (QJ71LP21-25 and QJ72LP25-25), except for the distance between stations and the communication speed. You can utilize the parameters of conventional systems.

●Differences from former types

| Item | QJ71LP21G, QJ72LP25G | QJ71LP21GE, QJ72LP25GE | QJ71LP21-25, QJ72LP25-25 | |
|---|---|---|---|---|
| Communication speed | 10Mbps | 10Mbps | 10Mbps/25Mbps (selected by switch) | |
| Distance between stations | GI-50/125 optical fiber cable: 2 km | GI-62.5/125 optical fiber cable: 2 km | (At communication speed of 10 Mbps)<br>SI optical fiber cable: 500 m<br>H-PCF optical fiber cable: 1 km<br>Broad-band H-PCF optical fiber cable: 1 km<br>QSI optical fiber cable: 1 km | (At communication speed of 25 Mbps)<br>SI optical fiber cable: 200 m<br>H-PCF optical fiber cable: 400 m<br>Broad-band H-PCF optical fiber cable: 1 km<br>QSI optical fiber cable: 1 km |

## [Performance Specifications]

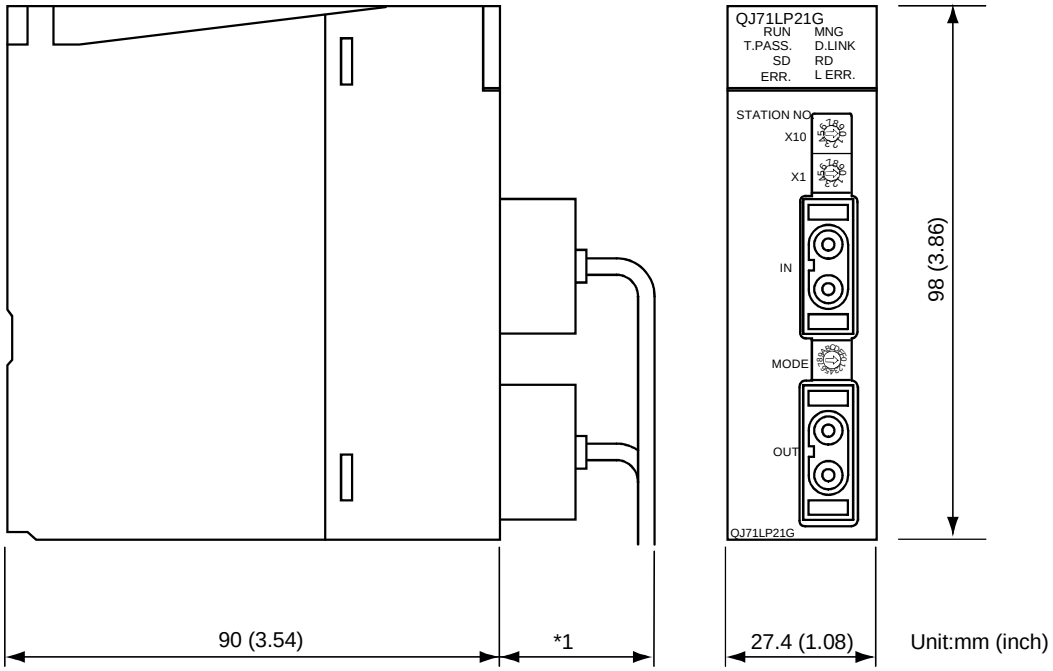
| Item | | PLC to PLC network | Remote I/O network | |
|---|---|---|---|---|
| Model name (Type) | | QJ71LP21G/QJ71LP21GE | | QJ72LP25G/QJ72LP25GE |
| Station type | | Control station/Normal stations | Remote master station | Remote I/O station |
| Maximum number of link points per network | LX/LY | 8192 points | | |
| | LB | 16384 points (8192 points in the MELSECNET/10 mode) | | |
| | LW | 16384 points (8192 points in the MELSECNET/10 mode) | | |
| Maximum number of link points per station | | ((LY + LB) / 8 + (2 × LW)) ≤ 2000 bytes | Remote master station to remote I/O station<br>((LY + LB)/8 + (2 x LW)) ≤ 1600 bytes<br>Remote I/O station to remote master station<br>((LY + LB)/8 + (2 x LW)) ≤ 1600 bytes | |
| Maximum input/output points per remote I/O station | | - | X + Y ≤ 4096 point<br>When X/Y number overlaps, only one side becomes the object of the point. | |
| Communication speed | | 10Mbps | | |
| Number of stations connected in one network | | Up to 64 stations<br>(1 control station, 63 normal stations) | 65 stations<br>(Remote master station: 1, Remote I/O station: 64) | |
| Total extension distance | | 30km | | |
| Distance between stations | | 2km | | |
| Connection cable | | Optical fiber cable (procured by user *2) | | |
| Applicable connector | | 2-core optical connector plug (procured by user *2) | | |
| Maximum number of networks | | 239 (total including PLC to PLC networks and remote I/O networks) | | |
| Maximum number of groups | | 32 (9in the MELSECNET/10 mode *1) | - | |
| Transmission path format | | Double loop | | |
| Communication method | | Token ring | | |
| Synchronous method | | Frame synchronous | | |
| Encoding method | | NRZI code (Non Return to Zero Inverted) | | |
| Transmission format | | Conforms to HDLC (frame type) | | |
| Error control system | | Retries based on CRC ($X^{16} + X^{12} + X^5 + 1$) and timeover | | |
| RAS function | | • Loopback function upon abnormal detection and cable breakage<br>• Diagnostic function of host link line check<br>• Abnormal detection using special relays and registers | | |
| Transient transmission | | N:N communication | | |
| Maximum number of modules loaded per CPU | | 4 modules | | - |
| I/O occupied points | | 32 points (intelligent function modules: 32 points) | | - |
| Current consumed internally with 5 V DC (A) | | 0.55 | | 0.89 |
| Weight (kg) | | 0.11 | | 0.15 |

*1: MELSECNET/10 mode works with only for PLC to PLC network.

*2: Technical expertise and special tools are required to connect the GI-50/125 and GI-62.5/125 optical fiber cables to connectors. In addition, dedicated connectors are required. Please contact your local Mitsubishi Electric System Service, for the purchase of the tools and parts.

## [External Dimensions]

QJ71LP21G/QJ72LP25G/QJ71LP21GE/QJ72LP25GE




*1: Please contact Mitsubishi Electric System Service Corporation for detail.

## [Manuals]

| Manual name | Manual shipment form | IB/SH No. | Type code |
|---|---|---|---|
| MELSECNET/H Network Module User's Manual (Hardware) QJ71LP21-25,QJ71LP21G,QJ71BR11 | Enclosed with product | IB-0800144-B | 13JT16 |
| MELSECNET/H Network Module User's Manual (Hardware) QJ72LP25-25,QJ72LP25G,QJ72BR15 | Enclosed with product | IB-0800145-B | 13JT17 |
| MELSECNET/H Network Module User's Manual (Hardware) QJ71LP21GE,QJ72LP25GE | Enclosed with product | IB-0800183-A | 13JR34 |
| Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network) | Sold separately | SH-080049-C | 13JF92 |
| Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) | Sold separately | SH-080124-B | 13JF96 |

# 2. Q80BD-J71LP21G, Q80BD-J71LP21GE

## [Features]

(1) Using of GI optical fiber cable with the above new modules provides maximum distance of 2 km between stations, whereas the previous modules could achieve only 1 km. Please note that the modules can construct only PLC to PLC network.

(2) Data from conventional systems can be utilized.
The performances and specifications of the modules are the same as those of the former types (Q80BD-J71LP21-25), except for the distance between stations and the communication speed. You can utilize the parameters and user applications of conventional systems.

●Differences from former types

| Item | Q80BD-J71 LP21G | Q80BD-J71 LP21GE | Q80BD-J71LP21-25 | |
|---|---|---|---|---|
| Communication speed | 10Mbps | 10Mbps | 10Mbps/25Mbps (switched using the MELSECNET/H Utility) | |
| Distance between stations | GI-50/125 optical fiber cable: 2 km | GI-62.5/125 optical fiber cable: 2 km | (At communication speed of 10 Mbps)<br>SI optical fiber cable: 500 m<br>H-PCF optical fiber cable: 1 km<br>Broad-band H-PCF optical fiber cable: 1 km<br>QSI optical fiber cable: 1 km | (At communication speed of 25 Mbps)<br>SI optical fiber cable: 200 m<br>H-PCF optical fiber cable: 400 m<br>Broad-band H-PCF optical fiber cable: 1 km<br>QSI optical fiber cable: 1 km |

## [Performance Specifications]

| Item | | Specifications | |
|---|---|---|---|
| Model name (Type) | | Q80BD-J71LP21G | Q80BD-J71LP21GE |
| Station type | | Control station/Normal stations | |
| Maximum number of link points per network | LX/LY | 8192 points | |
| | LB | 16384 points (8192 points in the MELSECNET/10 mode *1) | |
| | LW | 16384 points (8192 points in the MELSECNET/10 mode *1) | |
| Maximum number of link points per station | | ((LY + LB) / 8 + (2 × LW)) ≤ 2000 bytes | |
| Communication speed | | 10Mbps | |
| Number of stations connected in one network | | Up to 64 stations (1 control station, 63 normal stations) | |
| Total extension distance | | 30km | |
| Distance between stations | | 2km | |
| Connection cable | | Optical fiber cable (procured by user *2) | |
| Applicable connector | | 2-core optical connector plug (procured by user *2) | |
| Maximum number of networks | | 239 | |
| Maximum number of groups | | 32 (9 in the MELSECNET/10 mode) | |
| Transmission path format | | Double loop | |
| Communication method | | Token ring | |
| Synchronous method | | Frame synchronous | |
| Encoding method | | NRZI code (Non Return to Zero Inverted) | |
| Transmission format | | Conforms to HDLC (frame type) | |
| Error control system | | Retries based on CRC ($X^{16} + X^{12} + X^5 + 1$) and timeover | |
| RAS function | | • Loopback function upon abnormal detection and cable breakage<br>• Diagnostic function of host link line check<br>• Abnormal detection using special relays and registers | |
| Transient transmission | | N: N communication | |
| Number of boards that can be installed | | 4 boards *3 | |
| Installation slot | | PCI bus slot (Half size) | |
| Exclusive slot | | 1 slot | |
| Current consumed internally with 5 V DC (A) | | 0.45 | |
| Weight (kg) | | 0.11 | |

*1: Set the mode by using MELSECNET/H utility.

*2: Technical expertise and special tools are required to connect the GI-50/125 and GI-62.5/125 optical fiber cables to connectors. In addition, dedicated connectors are required. Please contact your local Mitsubishi Electric System Service for the purchase of the required tools and parts.

*3: The number of board that can be installed is the combined number of MELSECNET/H board (Q80BD-J71LP21-25/Q80BD-J71LP21G(E)/Q80BD-J71BR11) and MELSECNET/10 board (A70BD-J71QLP23(GE)/A70BDE-J71QBR13/A70BDE-J71QLR23)

## [Operating Environment]

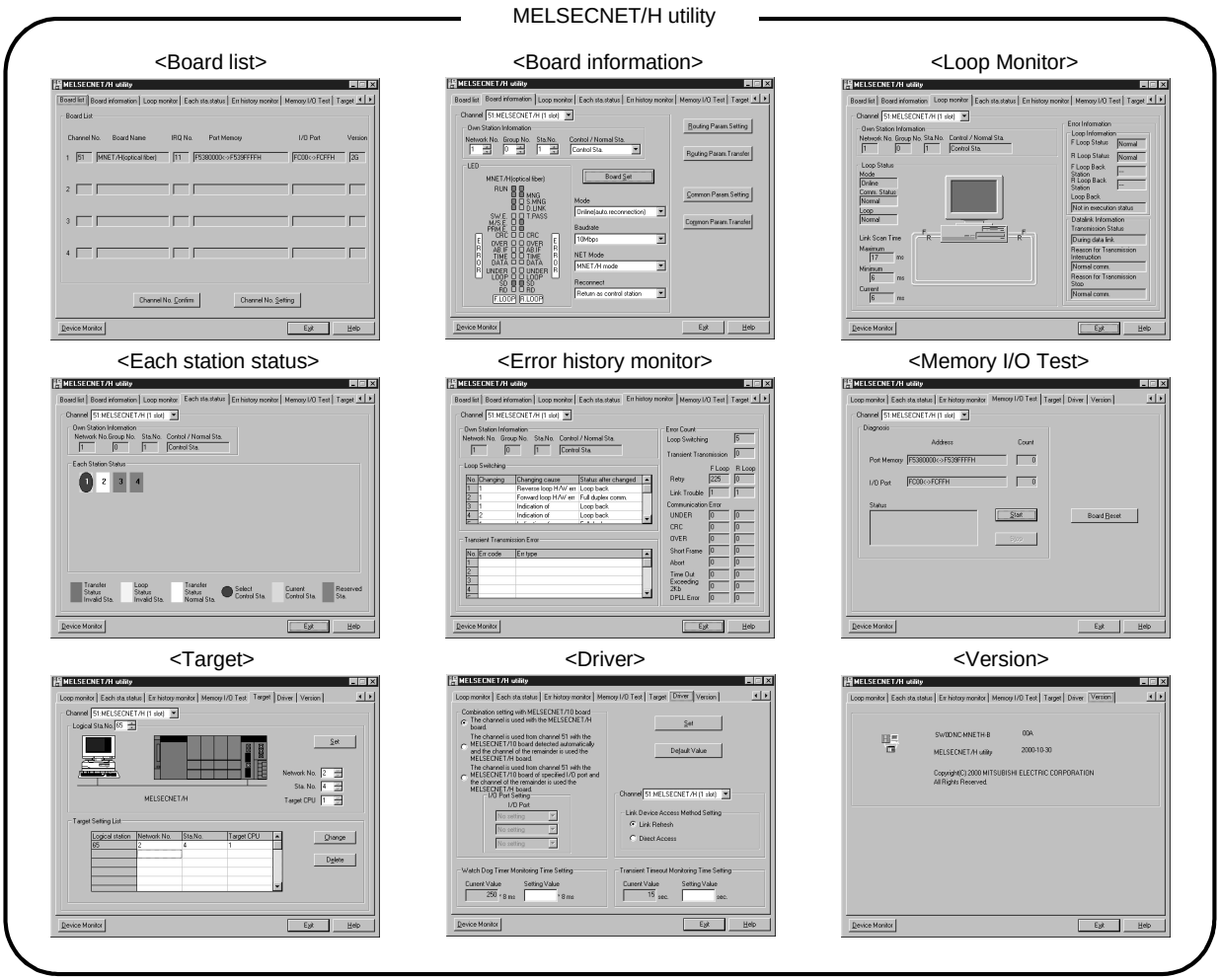
The following describes the operating environment of the Q80BD-J71LP21G and Q80BD-J71LP21GE.

| Item | | Description |
|---|---|---|
| Personal computer | | Personal computer with a 133 MHz or higher speed Pentium processor, and one or more PCI bus slots, running the specified operating system. *1 |
| | PCI bus specifications | 5 V DC, 32-bit bus, basic clock: 33 MHz |
| Operating System | | Any one of the following:<br>Microsoft Windows 95 Operating System (English version),<br>Microsoft Windows 98 Operating System (English version),<br>Microsoft Windows NT Workstation Operating System Version 4.0 (English version) *2<br>Microsoft Windows 2000 Professional Operating System (English version) |
| Display | | Resolution: 800 × 600 dots or higher (Recommended: 1024 × 768 dots) |
| Required memory | | 32 MB or more |
| Hard disk capacity | | 20 MB or more |
| Disk drive | | CD-ROM Drive |
| Programming languages *3 | | Any one of the following:<br>Microsoft Visual Basic 5.0 (English version) *4,<br>Microsoft Visual Basic 6.0 (English version),<br>Microsoft Visual C++ 5.0 (English version) *4,<br>Microsoft Visual C++ 6.0 (English version) |

*1 The driver is not compatible with a multi-processor equipped personal computer.
*2 Service Pack 3 or later is required, for Windows NT Workstation 4.0.
*3 User programs created in English environment can be used only in English environment. (They are not compatible with Japanese environment.)
*4 Windows 2000 Professional are not compatible with Visual Basic 5.0 and Visual C++ 5.0.

## [MELSECNET/H Utility]

The MELSECNET/H Utility offers various utility functions for monitoring and connecting the Q80BD-J71LP21G and Q80BD-J71LP21GE to MELSECNET/H or MELSECNET/10 network systems.




| Menu | Description |
|---|---|
| Board list | This menu displays the hardware information set for the Q80BD-J71LP21G and Q80BD-J71LP21GE, and to set and check channel numbers. |
| Board information | This menu is used to display and set various data of the Q80BD-J71LP21G and Q80BD-J71LP21GE. |
| Loop Monitor | This menu is used to monitor the line status of the local station. |
| Each station status | This menu is used to display the communication status and loop status of each station. |
| Error history monitor | This menu is used to display the log of loop errors, communication errors, and transient transmission errors. |
| Memory I/O test | This menu is used to perform diagnosis between the Q80BD-J71LP21G/Q80BD-J71LP21GE and a personal computer. |
| Target | This menu is used to set logical station numbers for accessing a multi-PLC system. |
| Driver | This menu is used to set the driver startup, link device access method as well as various monitoring times for the Q80BD-J71LP21G and Q80BD-J71LP21GE. |
| Version | This menu is used to display the version of the MELSECNET/H Utility. |

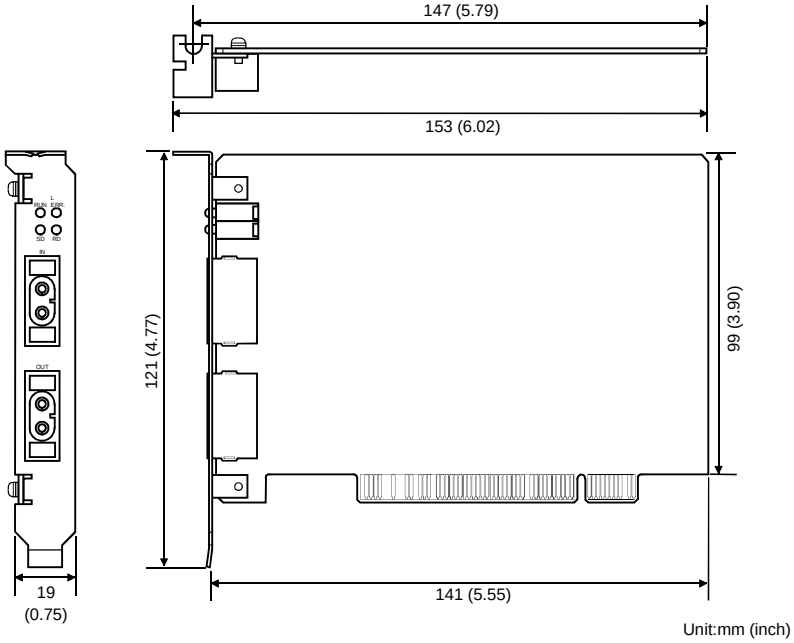
## [Function]

The Q80BD-J71LP21G and Q80BD-J71LP21GE can access PLC data from a user application using the following functions.

| 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 device. |
| mdTypeRead | Reads the type of PLC CPU. |
| mdControl | Remote RUN/STOP/PAUSE. |

| Function name | Description |
|---|---|
| mdInit | Refreshes the PLC device address. |
| mdBdRst | Resets the board itself. |
| mdBdModSet | Sets the mode of the board itself. |
| mdBdModRead | Reads the mode of 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 | Sends data (SEND function). |
| mdReceive | Receives data (RECV function). |

## [External Dimensions]




## [Product configuration]

| Product name | Type | Remarks |
|---|---|---|
| Type Q80BD-J71LP21G MELSECNET/H Interface Board | Q80BD-J71LP21G | Q80BD-J71LP21G x 1<br>CD-ROM (SW0DNC-MNETH-B) x 1<br>Manual x 1<br>Software license agreement x 1 |
| Type Q80BD-J71LP21GE MELSECNET/H Interface Board | Q80BD-J71LP21GE | Q80BD-J71LP21GE x 1<br>CD-ROM (SW0DNC-MNETH-B) x 1<br>Manual x 1<br>Software license agreement x 1 |

## [Manuals]

(1) Q80BD-J71LP21G

| Manual name | Manual shipping state | IB/SH No. | Type code |
|---|---|---|---|
| MELSECNET/H Interface Board User's Manual (Hardware)<br>Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71BR11 (Japanese/English version) | Enclosed with product | IB-0800154 | 13JT27 |
| MELSECNET/H Interface Board User's Manual<br>(For SW0DNC-MNETH-B) (English version) | Sold separately *1 | SH-080128 | 13JR24 |

*1: The manual is enclosed as PDF format on the same CD-ROM as the software package. (The CD-ROM includes the software (Acrobat Reader) required to read the manual on a personal computer.)
The printed manual is available separately.

(2) Q80BD-J71LP21GE

| Manual name | Manual shipping state | IB/SH No. | Type code |
|---|---|---|---|
| MELSECNET/H Interface Board User's Manual (Hardware)<br>Q80BD-J71LP21GE (English version) | Enclosed with product | IB-0800188 | 13JR38 |
| MELSECNET/H Interface Board User's Manual<br>(For SW0DNC-MNETH-B) (English version) | Sold separately *1 | SH-080128 | 13JR24 |

*1: The manual is enclosed as PDF format on the same CD-ROM as the software package. (The CD-ROM includes the software (Acrobat Reader) required to read the manual on a personal computer.)
The printed manual is available separately.

| Country/Region | Sales office | Tel/Fax |
|---|---|---|
| U.S.A | Mitsubishi Electric Automation Inc.<br>500 Corporate Woods Parkway Vernon Hills, IL 60061 | Tel : 1-847-478-2100<br>Fax : 1-847-478-0328 |
| Brazil | MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda.<br>Av. Rio Branco, 123-15 ,and S/1507, Rio de Janeiro, RJ CEP 20040-005, Brazil | Tel : 55-21-221-8343<br>Fax : 55-21-221-9388 |
| Germany | Mitsubishi Electric Europe B.V. German Branch<br>Gothaer Strasse 8 D-40880 Ratingen, GERMANY | Tel : 49-2102-486-0<br>Fax : 49-2102-486-717 |
| U.K | Mitsubishi Electric Europe B.V. UK Branch<br>Travellers Lane, Hatfield, Herts., AL10 8XB,UK | Tel : 44-1707-276100<br>Fax : 44-1707-278695 |
| Italy | Mitsubishi Electric Europe B.V. Italian Branch<br>Centro Dir. Colleoni, Pal. Perseo - Ingr.2<br>Via Paracelso 12, 20041 Agrate B., Milano, Italy | Tel : 39-039-6053301<br>Fax : 39-039-6053312 |
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| Hong Kong | Ryoden International Ltd.<br>10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong | Tel : 852-2887-8870<br>Fax : 852-2887-7984 |
| China | Ryoden International Shanghai Ltd.<br>3F Block5 Building Automation Instrumentation Plaza 103 Cao Bao Rd. Shanghai 200233 China | Tel : 86-21-6475-3228<br>Fax : 86-21-6484-6996 |
| Taiwan | Setsuyo Enterprise Co., Ltd.<br>6F., No.105 Wu-Kung 3rd.RD, Wu-Ku Hsiang, Taipei Hsine, Taiwan R.O.C. | Tel : 886-2-2299-2499<br>Fax : 886-2-2299-2509 |
| Korea | HAN NEUNG TECHNO CO.,LTD.<br>1F Dong Seo Game Channel Bldg., 660-11,Deungchon-dong Kangsec-ku, Seoul, Korea | Tel : 82-2-3668-6567<br>Fax : 82-2-3664-8335 |
| Singapore | Mitsubishi Electric Asia Pte, Ltd.<br>307 ALEXANDRA ROAD #05-01/02,<br>MITSUBISHI ELECTRIC BUILDING SINGAPORE 159943 | Tel : 65-473-2480<br>Fax : 65-476-7439 |
| Thailand | F. A. Tech Co.,Ltd.<br>898/28,29,30 S.V.CITY BUILDING,OFFICE TOWER 2,FLOOR 17-18 RAMA 3 ROAD,BANGKPONGPANG,YANNAWA,BANGKOK 10120 | Tel : 66-2-682-6522<br>Fax : 66-2-682-6020 |
| Indonesia | P.T. Autoteknindo SUMBER MAKMUR<br>JL. MUARA KARANG SELATAN BLOK A UTARA NO.1 KAV. NO.11 KAWASAN INDUSTRI/ PERGUDANGAN JAKARTA - UTARA 14440 | Tel : 62-21-663-0833<br>Fax : 62-21-663-0832 |
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