# MITSUBISHI ELECTRIC

Mitsubishi PLC

## MELSECNET/H Network Module
## QJ71LP21S-25

### New!

Network module with external power supply input is now available in MELSECNET/H network series!

# Uninterruptible data link is available
## Whenever power supply fails!

**External power supply prevents data link from breaking by PLC power failure.**

The external power supply allows the PLC system to continue data link in case of power failure.
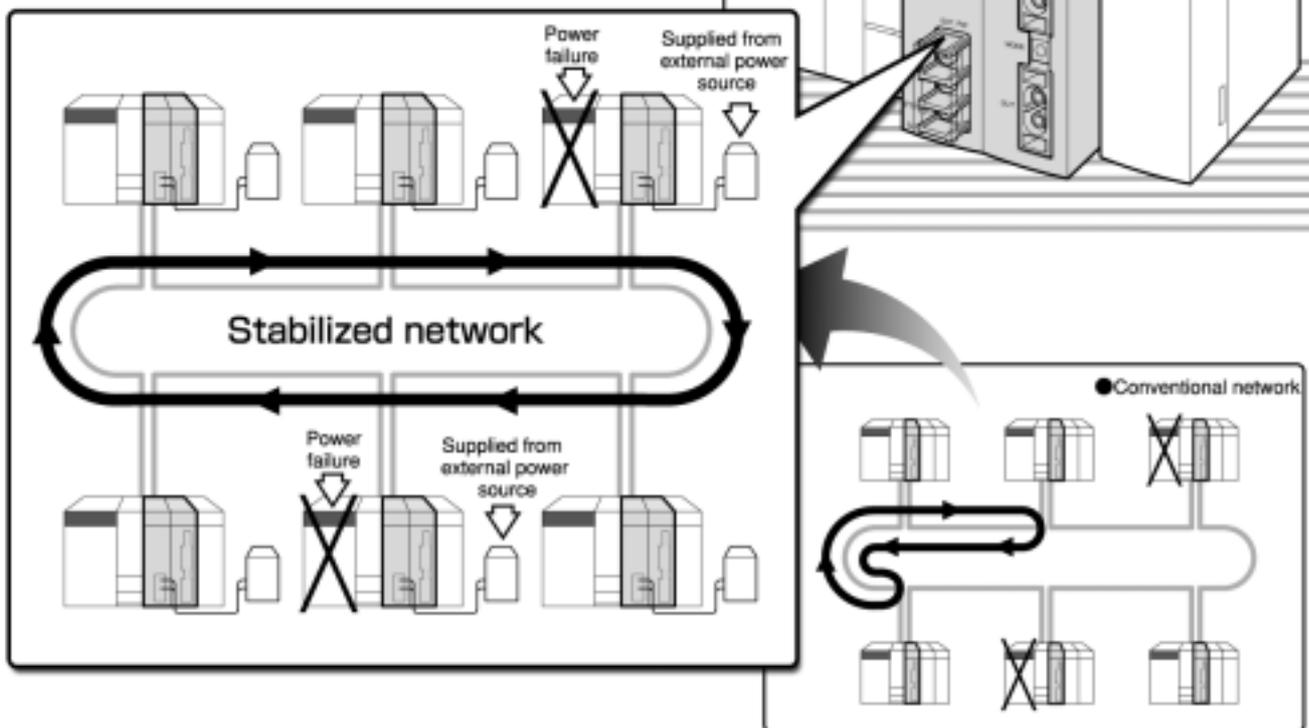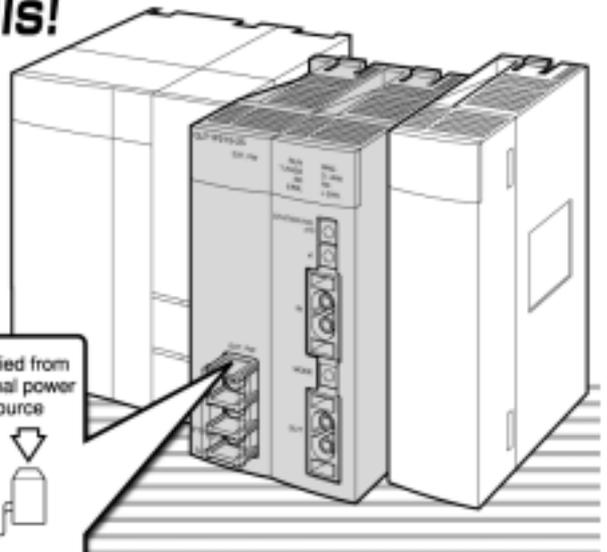


The QJ71LP21S-25 is suitable for systems where the operation cannot be interrupted, such as LCD (Liquid Crystal Display) and semiconductor production lines.

## [Features]

● External power supply prevents station from failing when power supply fails

(1) When the PLC system power supply is accidentally stopped, the QJ71LP21S-25 works as a repeater using the power supplied from an external power supply, which inhibits the communication disruption. While more than one station fails, the stations located between the failed ones will continue with data link. When the normal power supply is resumed, the QJ71LP21S-25 stops as a repeater and restarts its normal operation.

(a) Network system using only QJ71LP21S-25
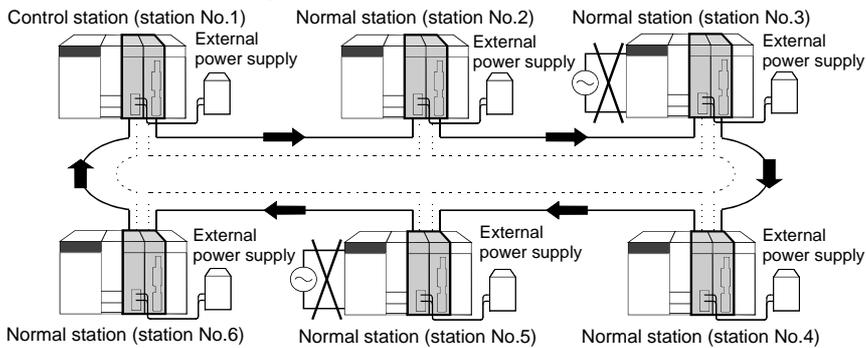


When the power to normal stations (No.3 and No.5) fails, the network line is not disconnected, because of external power supply to QJ71LP21S-25.
The network line remains connected and normal station (No. 4) continues data link.

(b) Network system using only QJ71LP21-25
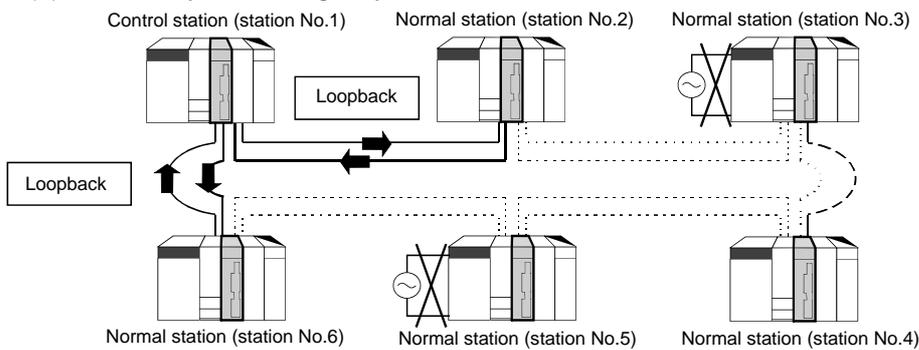


When the power to normal stations (No.3 and No.5) fails, the network line is disconnected, therefore normal station (No.4) cannot continue data link.

(c) Network system using both QJ71LP21-25 and QJ71LP21S-25
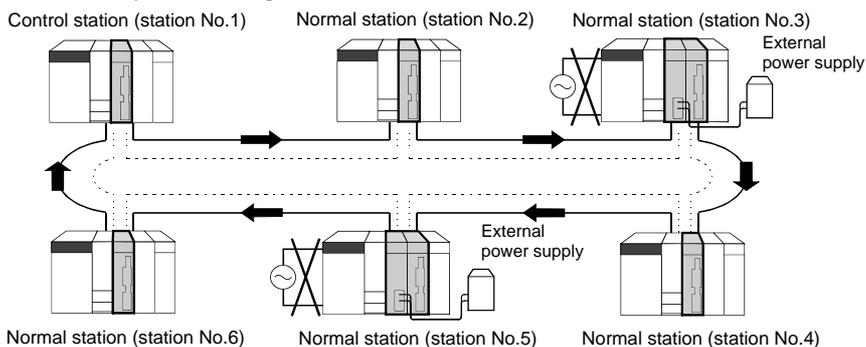


The station with power failure that works as a repeater does not execute data link same as a conventional system. Therefore, normal communication stations detect this station as a data link error station, and the B/W device hold the status before failure.

(2) When a module other than a network module fails, the faulty module can be replaced without the data link disruption.

(3) The QJ71LP21S-25 guards against the consequence of power failure and loopback, the link scan time of the network is kept stable.

●Differences from QJ71LP21-25

The QJ71LP21S-25 has the same function and performance as the QJ71LP21-25. Therefore, the program for the QJ71LP21-25 is available for the QJ71LP21S-25.

However, the QJ71LP21S-25 requires two I/O slots while the Q71LP21-25 requires only one I/O slot.

## [Performance Specifications]

| Item | | QJ71LP21S-25 |
|---|---|---|
| Maximum number of link points per network | LX/LY | 8192 points |
| | LB | 16384 points (In MELSECNET/10 mode: 8192 points) |
| | LW | 16384 points (In MELSECNET/10 mode: 8192 points) |
| Maximum number of link points per station | | $((LY + LB)/8 + (2 \times LW) \leqq 2000$ bytes |
| Communication speed | | 25 Mbps/10 Mbps (Selectable by mode switch) |
| Number of connectable stations per network | | 64 stations (control station: 1, normal station: 63) |
| Connection cable | | Optical fiber cable *1 |
| Overall distance | | 30 km (98430 ft.) |
| Distance between stations | 25Mbps | SI optical cable:200 m (656.2 ft.)<br>H-PCF optical cable :400m (1312.4 ft.)<br>Broad-band H-PCF optical cable :1 km (3281 ft.)<br>QSI optical cable:1 km (3281 ft.) |
| | 10Mbps | SI optical cable: 500 m (1640.5 ft.)<br>SI type H-PCF optical cable :1 km (3281 ft.)<br>Broad-band H-PCF optical cable :1 km (3281 ft.)<br>QSI optical cable:1 km (3281 ft.) |
| Maximum number of networks | | 239 (Total including number of remote I/O networks) |
| Maximum number of groups | | 32 (In MELSECNET/10 mode: 9) |
| Transmission path format | | Duplex loop |
| Communication method | | Token ring |
| Synchronous method | | Frame synchronous method |
| Encoding method | | NRZI (Non Return to Zero Inverted) code |
| 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 due to error detection and cable breakage<br>• Link line self-diagnostic function<br>• Prevention of system failure by switching to alternative control station<br>• Error detection using special relays and registers |
| Transient transmission | | • N-to-N communication (monitoring, program up/downloading, etc.)<br>• Various send/receive instructions from sequence programs<br>  (ZNRD/ZNWR,SEND/RECV,RECVS,READ/WRITE,SREAD/SWRITE,<br>  REQ,RRUN/RSTOP,RTMRD/RTMWR)<br>• Send function by addressing to channel number of 1 to 8 |
| Special cyclic transmission function | | • Low-speed cyclic transmission function |
| No. of occupied I/O points | | 48 points (I/O assignment: first 16 points as empty, last 32 points as intelligent) *2 |
| External supply power | Voltage | 20.4 to 31.2 V DC |
| | Current | 0.20 A |
| | Terminal screw size | M3 screw |
| | Applicable solderless terminal | R1. 25-3 |
| | Applicable wire size | 0.3 to 1.25 mm$^2$ |
| | Tightening torque | 42 to 58N•cm |
| Internal current consumption (5 VDC) | | 0.55 A |
| Weight | | 0.20kg |

*1: For conventional optical fiber cable (A-2P-□), the distance between stations varies with the type L and H.
*2: Two I/O slots are occupied.
   The head I/O address should be the number added on 10H to the head address of installed slot, because the first slot occupies 16 points as a vacant and the second slot occupies 32 points for the automatic I/O assignment. It is available to assign zero for the first slot.

   (Example)
     When installing the module to slot 0, set 10H to "Start I/O No."
     (When 0 point is set for slot 0 in the I/O assignment, set 0H to "Start I/O No.")

## [Packing list]

| Product name | Model |
|---|---|
| MELSECNET/H Network Module | QJ71LP21S-25 |

## [Manual]

| Manual name | Manual supply status | IB/SH number | Model code |
|---|---|---|---|
| MELSECNET/H Network Module User's Manual (Hardware) | Included with the product | IB-0800144-C | 13JT16 |
| Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network) | Sold separately | SH-080049-F | 13JF92 |
| Q corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) | Sold separately | SH-080124-E | 13JF96 |

| 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 |
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| 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 : +39-039-60531<br>Fax : +39-039-6053312 |
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| South Africa | Circuit Breaker Industries LTD.<br>Private Bag 2016, Isando 1600, Johannesburg, South Africa | Tel : +27-11-928-2000<br>Fax : +27-11-392-2354 |
| Hong Kong | Ryoden Automation Ltd.<br>10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong | Tel : +852-2887-8870<br>Fax : +852-2887-7984 |
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| Thailand | F. A. Tech Co.,Ltd.<br>898/28,29,30 S.V.CITY BUILDING,OFFICE TOWER 2,FLOOR<br>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.<br>NO.11 KAWASAN INDUSTRI/ PERGUDANGAN JAKARTA - UTARA 14440 | Tel : +62-21-663-0833<br>Fax : +62-21-663-0832 |
| India | Messung Systems Put,Ltd.<br>Electronic Sadan NO:111 Unit No15, M.I.D.C BHOSARI,PUNE-411026 | Tel : +91-20-7128927<br>Fax : +91-20-7128108 |
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