

## The ETHERNET

### Overview

ETHERNET is the most widespread network for connection of information processors such as personal computers and work stations. By loading an ETHERNET interface into the PLC, production-related management information can be transmitted rapidly to personal computers or work stations.

ETHERNET is a platform for a very wide range of data communications protocols. The combination of ETHERNET and the extremely widespread TCP/IP protocol enables high-speed data communications between process supervision systems and the MELSEC PLC series.

### Structure

Up to 5 ETHERNET segments can be linked to one another per repeater. There are three standard network types: "Yellow" cable using the 10BASE5 interface, "Cheapernet" cable (Thin Ethernet) using the 10BASE2 interface and 10/100BASE-T for using with twisted pair cable.

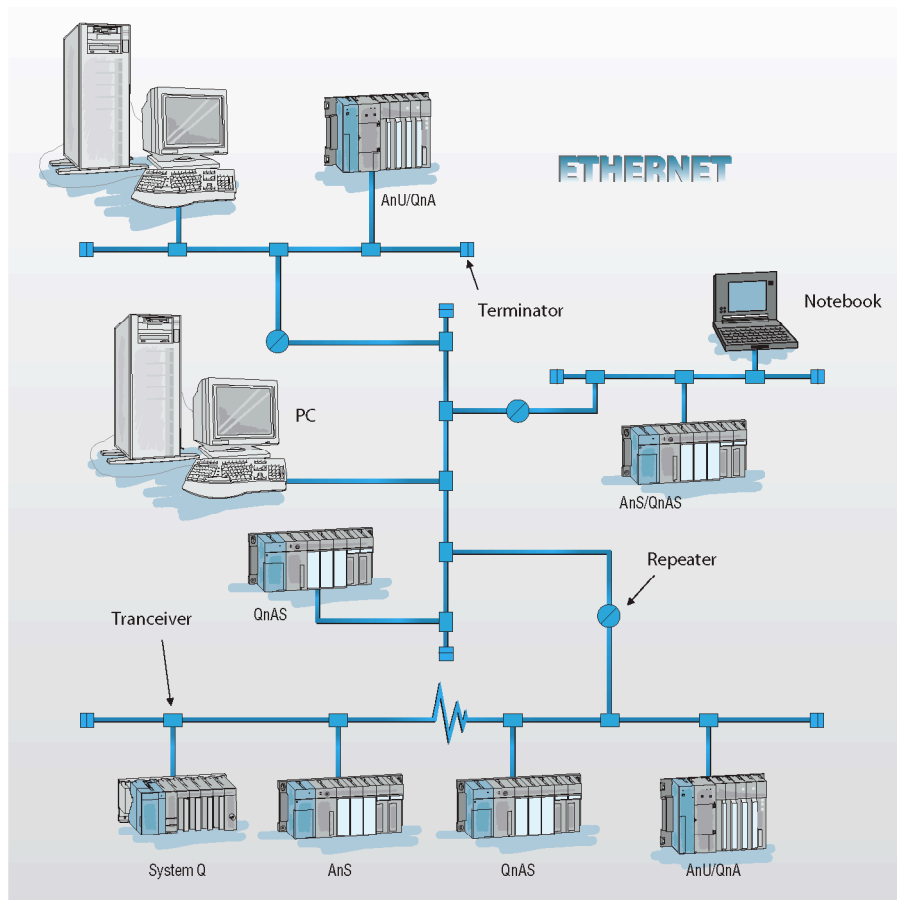
Bus segments using Yellow cable can be up to 500 m long. Cheapernet configurations support bus segment cable lengths of up to 185 m.

### Data exchange

TCP/IP provides logical point-to-point links between two ETHERNET stations. Using the TCP/IP protocol a process supervision system can request 256 data words per query, 480 words if a QnAS compatible ETHERNET card is used and 960 if the System Q module is used. The speed of the response to the query varies depending on the type of CPU used and the ETHERNET module.

### FTP server functionality

The MELSEC PLC compatible ETHERNET modules also provide FTP server functionality, in addition to the normal TCP/IP communications services. This means that a personal computer running standard communications software can read from and write to the PLC CPU sequence program via the Internet.

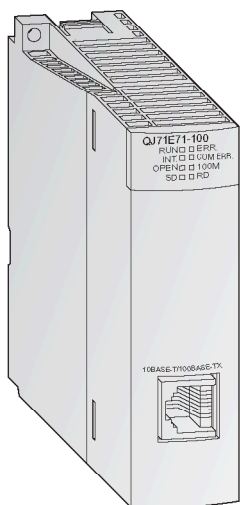


### Administration

The programming software GX IEC Developer or GX Developer providing function blocks or setup routines for the PLCs, makes the configuration of one or more TCP/IP links a quick and easy process.

Cable and logic diagnostics are also simple because all MELSEC ETHERNET cards support the PING instruction.

Specifications	Yellow Cable	Thin Ethernet	Twisted Pair	
Cable type	10BASE5	10BASE2	10BASE-T	100BASE-TX
Max. distance between 2 stations	2500 m	925 m	depends on configuration	
Min. distance between 2 stations	2.5 m	0.5 m	—	—
Max. segment length	500 m	185 m	100 m	100 m
Max. permitted no. of repeaters	4	4	—	—
Max. stations per segment	100	30	1024 (12 per hub)	1024 (12 per hub)
Connectortype	AUI	BNC	RJ45	RJ45



**QJ71E71-B2, QJ71E71-B5, QJ71E71-100**

These interface modules are used on the PLC side to connect a host system, e.g. personal computer or work station, and Q mode PLC via ETHERNET to collect or change PLC data, monitor CPU module operation, control status and transfer any data by TCP/IP or UDP/IP communication.

**Special features:**

- Between four different network types of 10BASE5, 10BASE2, 10BASE-T and 100BASE-TX can be chosen
- The communications function using fixed buffers is available to transfer data between the PLC and Personal Computer or another PLC
- Up to 960 data words per query are available
- Integrated FTP protocol
- Sending and receiving data via e mail or SMS
- Up to 16 communications lines can be opened for concurrent data communications
- On-screen setting of the initial processing and logical link processing possible
- PLC programming and monitoring can be performed from GX Developer/GX IEC Developer on a personal computer via Ethernet
- PING diagnostic function support

Specifications		QJ71E71-100	QJ71E71-B5	QJ71E71-B2
Module type		Client / server	Client / server	Client / server
Communications method		ETHERNET: CSMA/CD	ETHERNET: CSMA/CD	ETHERNET: CSMA/CD
Interface	type	10BASE-T      100BASE-TX	10BASE5	10BASE2
Communications data	transfer rate	Mbit/s	10 autodetect	10 autodetect
	transfer type		Base band	Base band
	max. network length	m	—	2500
	max. segment length	m	100 <sup>①</sup>	500
	no. of nodes		Cascade connection of up to four levels	Cascade connection of up to two levels
	min. distance between 2 nodes	m	—	2,5
Datasize	no. of simultaneous openable connections		16	16
	fixed send/receive buffer		1 k words x 8	1 k words x 8
	variable buffer		6 k words	6 k words
Simultaneous bidirectional connections		8 + 1 FTP connection	8 + 1 FTP connection	8 + 1 FTP connection
Transport protocol		TCP/IP with ARP, UDP/IP	TCP/IP with ARP, UDP/IP	TCP/IP with ARP, UDP/IP
No. of loadable modules per CPU		4	4	4
No. or occupied I/O points		32	32	32
Internal power consumption (5 V DC)	mA	500	430	700
Weight	kg	0.11	0.12	0.14
Dimensions (W x H x D)	mm	27.5 x 98 x 90	27.5 x 98 x 90	27.5 x 98 x 90
<b>Order information</b>	Art. no.	138327	147287	129614
<b>Accessories</b>		—	—	—

① Length between hub and node