MITSUBISHI ELECTRIC

TECHNICAL BULLETIN

[Issue No.] FA-A-0199
[Title] Production discontinuation of the QD51(-R24) intelligent communication module
[Date of Issue] March 2016
[Relevant Models] QD51, QD51-R2

Thank you for your continued support of Mitsubishi programmable controllers, MELSEC-Q series.

Production of the following MELSEC-Q series models will be discontinued.

1. Model to be discontinued

Product	Model
QD51 intelligent communication module	QD51
QD51-R24 intelligent communication module	QD51-R24

2. Schedule

- Transition to made-to-order: June 30, 2016
- Order acceptance: Through January 31, 2017
- Production discontinuation: February 28, 2017

3. Reason for discontinuation

Some parts of the above products are now obsolete, and we will have difficulty to maintain our production system.

4. Repair support

- Repair support period: Until February 29, 2024 (for seven years after the discontinuation of production)

5. Alternative models

If the QD51(-R24) has been used for data communication with an external device, the predefined protocol function of the QJ71C24N(-R2) can be utilized for it.

Model to be discontinued	Alternative models
QD51	QJ71C24N-R2
QD51-R24	QJ71C24N

6. Comparison of specifications

6.1 Comparing the specifications of the QD51 and QJ71C24N-R2

Item		QD51	QJ71C24N-R2
Interface	CH.1	RS-232-compliance (D-sub 9 pin)	RS-232-compliance (D-sub 9 pin)
	CH.2	RS-232-compliance (D-sub 9 pin)	RS-232-compliance (D-sub 9 pin)
Communication method		Full-duplex communications	Full-duplex/half-duplex communications
Synchronization method		Asynchronous method	Asynchronous method
Transmission speed		300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400 (bps)*1	50, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400 (bps)*2
Transmission distance (overall distance)		15m maximum	15m maximum
Data format	Start bit	1	1
	Data bit	7, 8	7, 8
	Parity bit	Even, Odd, None	Even, Odd, None
	Stop bit	1, 2	1, 2
Transmission control (RS-232)	DTR/DSR (ER/DR) control	Enabled	Enabled
	RS/CS control	Enabled	Enabled
	CD(DCD) signal control	Disabled	Enabled
	DC1/DC3 (Xon/Xoff) control	Enabled	Enabled
	DC2/DC4 control	Disabled	Enabled
Number of occupied I/O points		32 points per slot (I/O assignment: Intelli: 32 points)	32 points per slot (I/O assignment: Intelli: 32 points)

*1 Total transmission speed of two interfaces must be within 38400bps.

*2 Transmission speed 230400bps is available for only CH.1. (Not available for CH.2)
Total transmission speed of two interfaces must be within 230400bps.
Total transmission speed of two interfaces must be within 115200bps when the communication data monitoring function is used.

6.2 Comparing the specifications of the QD51-R24 and QJ71C24N

Item		QD51-R24	QJ71C24N
Interface	CH.1	RS-232-compliance (D-sub 9 pin)	RS-232-compliance (D-sub 9 pin)
	CH.2	-	RS-422/485-compliance (2-piece terminal block)
	CH.3	RS-422/485-compliance (2-piece terminal block)	-
Communication method		Full-duplex communications	Full-duplex/half-duplex communications
Synchronization method		Asynchronous method	Asynchronous method
Transmission speed		300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400 (bps)*1	50, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400 (bps)*2
Transmission distance (overall distance)	RS-232	15m maximum	15m maximum
	RS-422/485	1200m maximum (overall distance)	1200m maximum (overall distance)
Data format	Start bit	1	1
	Data bit	7, 8	7, 8
	Parity bit	Even, Odd, None	Even, Odd, None
	Stop bit	1, 2	1, 2
Transmission control (RS-232)	DTR/DSR (ER/DR) control	Enabled	Enabled
	RS/CS control	Enabled	Enabled
	CD(DCD) signal control	Disabled	Enabled
	DC1/DC3 (Xon/Xoff) control	Enabled	Enabled
	DC2/DC4 control	Disabled	Enabled
Transmission control (RS-422/485)	DTR/DSR (ER/DR) control	Disabled	Disabled
	RS/CS control	Disabled	Disabled
	CD(DCD) signal control	Disabled	Disabled
	DC1/DC3 (Xon/Xoff) control	Enabled	Enabled
	DC2/DC4 control	Disabled	Enabled
Number of occupied I/O points		32 points per slot (I/O assignment: Intelli: 32 points)	32 points per slot (I/O assignment: Intelli: 32 points)

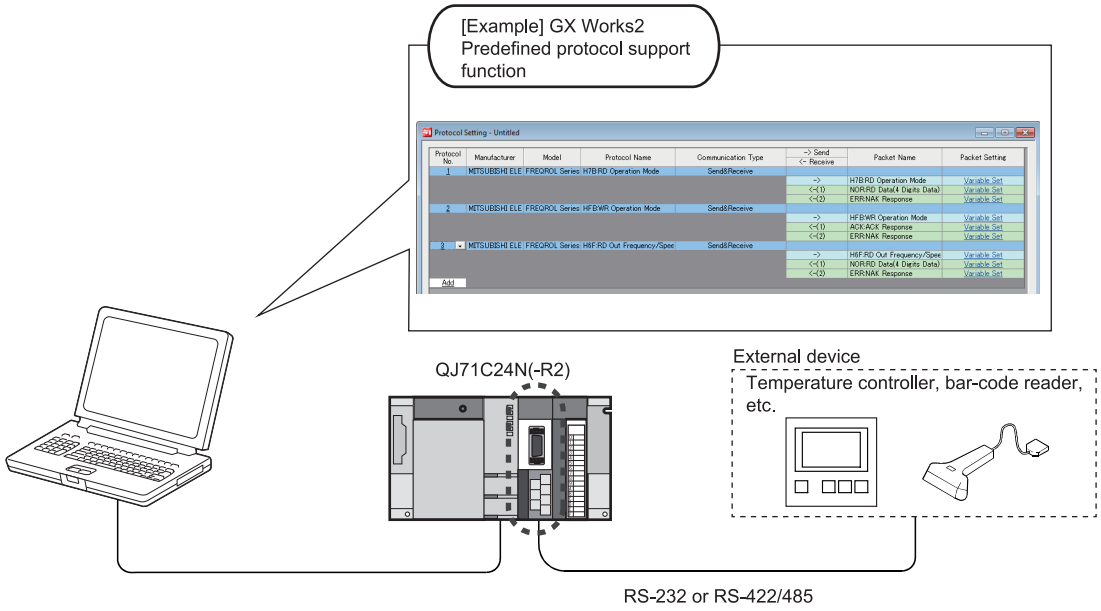
*1 Total transmission speed of two interfaces must be within 38400bps.

*2 Transmission speed 230400bps is available for only CH.1. (Not available for CH.2)
Total transmission speed of two interfaces must be within 230400bps.
Total transmission speed of two interfaces must be within 115200bps when the communication data monitoring function is used.

7. Substitution of the predefined protocol function for data communication processing

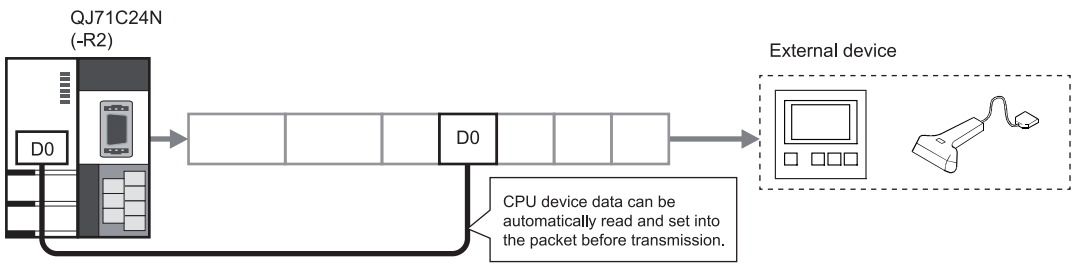
If the QD51(-R24) has been used for data communication with an external device, the predefined protocol function of the QJ71C24N(-R2) can be utilized for it.
The following operations, which have been performed from a BASIC program of the QD51(-R24), can be performed by registering to the flash ROM of the QJ71C24N(-R2) after setting protocols on the GX Works2 or GX Configurator-SC window.

- Communication setting for RS-232 and RS-422/485
- Communication data conversion between strings and numbers (ASCII-Binary conversion)
- Processing such as writing receive data to CPU devices

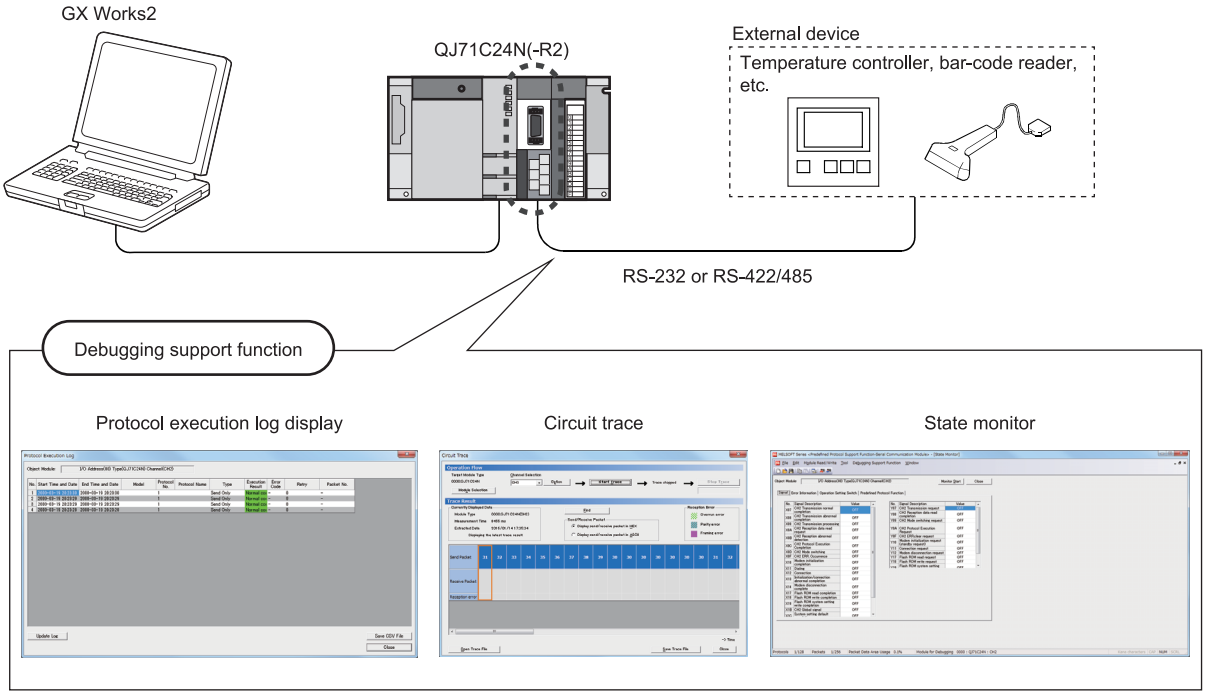


7.1 Features of the predefined protocol function of the QJ71C24N(-R2)

- Protocols for communication with an external device can be created easily on the GX Works2 or GX Configurator-SC setting window.
  Without creating sequence programs, communication protocols (including a communication procedure) can be created and registered.
  Also, communication data conversion between strings and numbers (ASCII-Binary conversion) can be set on the GX Works2 or GX Configurator-SC window.
- Data to be sent can be read from CPU devices to the QJ71C24N(-R2). Data received by the QJ71C24N(-R2) can also be written to CPU devices.



- The debugging support function of GX Works2 or GX Configurator-SC allows line data and communication signal checking and state monitoring, making debugging easy even without a line analyzer.



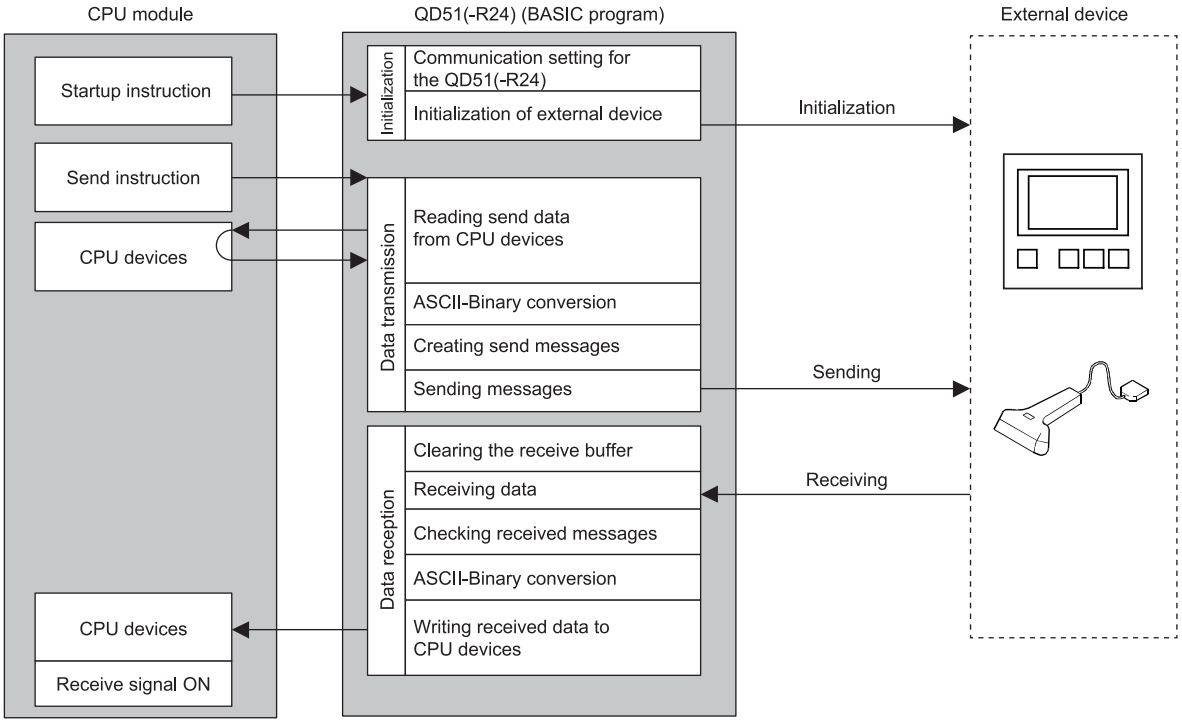
- Data configured in GX Works2 or GX Configurator-SC can be registered to the flash ROM of the QJ71C24N(-R2).

7.2 Operation overview

Communication processing with an external device differs between the QD51(-R24) and the predefined protocol function of the QJ71C24N(-R2) as described below.

(1) When the QD51(-R24) is used

The BASIC program of the QD51(-R24) initializes the external device, sends data, and receives data.

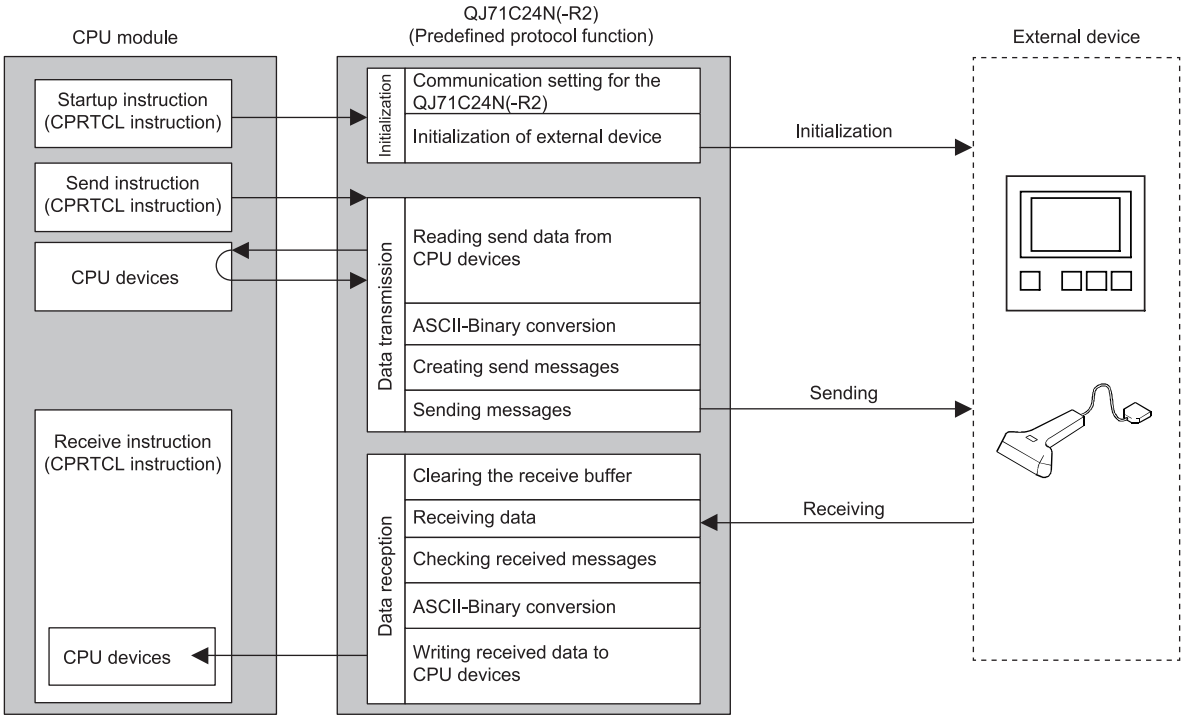


(2) When the predefined protocol function of the QJ71C24N(-R2) is used

In GX Works2 or GX Configurator-SC, an initialization packet for communication with the external device and send and receive packets can be set, and these settings can be registered to the flash ROM of the QJ71C24N(-R2).

Once a predefined protocol is registered, data can be sent or received by specifying a packet No. in the sequence program (CPRTCL instruction).

Up to 256 packets can be registered to the flash ROM of the QJ71C24N(-R2).



For the initialization, send, and receive packets of the predefined protocol function, conversion data options can be selected in combination so that the setting will be suitable for the external device.

[Packet configuration]

Header	Data 1	Data 2	●●●	Data n	Terminator

Element	Setting	Example
Header	Any ASCII string or binary code can be set.	"STX", "ENQ", 1AB2C3
Data	Any data can be set. The data part settings can be altered as follows: • HEX→ASCII or ASCII→HEX (decimal or hexadecimal) • Conversion size: word or double word • Byte swap: enable or disable • Number of data: fixed or variable • Blank padding: 0 or space • Sign character: none, +, 0, or space • Delimiter: none, comma, or space	-
Terminator	Any ASCII string or binary code can be set. The following check codes are available. • Horizontal parity • Sum check • 16-bit CRC (MODBUS® specifications) • ASCII (decimal or hexadecimal) • Binary code • Complement calculation: enable or disable • Byte swap: enable or disable	"ETX", [CR], 1AB2C3

8. Relevant manual

For replacement, refer to the following manuals.

- Details of the QJ71C24N(-R2)

Manual name	Manual number (model code)
Q Corresponding Serial Communication Module User's Manual (Basic)	SH-080006 (13JL86)

- Details of the predefined protocol function of the QJ71C24N(-R2)

Manual name	Manual number (model code)
GX Works2 Version 1 Operating Manual (Intelligent Function Module)	SH-080921ENG (13JU69)
GX Configurator-SC Version 2 Operating Manual (Pre-defined protocol support function)	SH-080850ENG (13JU66)