GS 34M06H21-01E

FA-M3 Personal Computer Link Modules UT Link Module Ladder Communication Modules

FA-M3

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For information on the Discontinued Modules, refer to GS34M06H21-99E.



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F3LC11-1F Personal Computer Link Module

General

The F3LC11-1F is connected to a higher-level computer, such as a personal computer or FA computer, or a display for RS-232-C communications.

- It enables reading and writing of all FA-M3 devices.
- It does not require a transmission application program.
- It allows reading and writing of devices even when a ladder program is not running.
- It enables direct connection to a display having a programmable controller interface.
- It enables remote running and stopping of programs on FA-M3.
- It enables loading and saving of programs.
- It enables reading of program-related information (program name, size, block name, etc.) and error logs.
- It supports several types of external modems, allowing for use of a cellular phone where a 56kbps fast communication interface or public telephone line is not available.

| opeemeanor | 15 | | |
|---|---|-------------------------|--|
| Item | Specification | | |
| Interface | Conforms to the EIA RS-232-C standard | | |
| Transmission mode | Half-duplex | | |
| Synchronization | Start-stop synchronization | | |
| Transmission speed | 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57,6k, 115,2 kbps | | |
| Transmission distance | 15 m max. | | |
| Number of ports | 1 (not isolated) | | |
| • | Start bit | 1 | |
| Data format | Data length | 7 or 8 bits | |
| Data Iormat | Parity bit | None, even or odd | |
| | Stop bit | 1 or 2 bits | |
| Error detection | Parity check, checks | um | |
| Control line | RS always on, ER al | ways on | |
| Xon/Xoff control | None | | |
| Setup items | Transmission speed, data format, checksum, ending character, protection | | |
| Protocol | Proprietary protocol | | |
| Ending character | Yes or No | | |
| Protection feature | Yes or No | | |
| Access range | All sequence devices, BASIC common area, upload/download ladder program, RUN/STOP, read error log, read user log | | |
| Number of modules | F3SP21: 2 max. F3SP22, F3SP25, F3SP28, F3SP35, F3SP36 F3SP53, F3SP58, F3SP59, F3SP66, F3SP67 F3SP71, F3SP76, F3BP20 and F3BP30: 6 max. * Total number of modules including those | | |
| | interface modules, and GP-IB communication modules [slave]) | | |
| Current consumption | 320 mA | | |
| External connection | D-sub 9-pin connecto | or (female), M2.6 screw | |
| External dimensions | 28.9 (W) x 100 (H) x | 83.2 (D) mm* | |
| Weight | 120 g | | |
| Surrounding air | Operating : 0 to : | 55°C | |
| temperature range | Storage : -20°0 | C to 75°C | |
| Surrounding humidity | Operating : 10 to | 90% RH (non-condensing) | |
| range | Storage : 10 to | 90% RH (non-condensing) | |
| Surrounding | Must be free of corro | sive gases, flammable | |
| atmosphere | gases or heavy dust. | | |
| *: Excluding protrusions (see external dimensions for details). | | | |

Specifications



Components and Functions

Front View



Module function switch Enables modem connection. АННИНИНИИ

Note: This figure is drawn with the panel cover removed.

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The module is connected to a personal computer or display through an RS-232-C connector.





D-sub 9-pin connector (female)

| Pin No. | Signal Name | Name | Signal Direction FA- M3 PC | | Description |
|------------|----------------|------------------------|----------------------------------|---------------|---|
| 2 | RD | Receive data | ← | | |
| 3 | SD | Send data | | \rightarrow | |
| 4 | ER | Data Terminal ready | | → | Always output ON in RDY state |
| 5 | SG | Signal ground | - | \rightarrow | |
| 6 | DR | Data set ready | ↓ | | Always on |
| 7 | RS | Request to send | | \rightarrow | Always output ON in RDY state |
| 8 | CS | Clear to send | ↓ | | Always input ON. Sending not allowed when input is OFF. |

Cabling Example (for 25-pin device)



Cabling Example (for 9-pin device)



Note: The pin assignments on the personal computer or display shown in this example assumes a D-sub 9-pin connector.

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|-------------------|
| F3LC11 | -1F | | | One RS-232-C port |





F3LC12-1F Personal Computer Link Module

General

The F3LC12-1F is connected to a higher-level computer, such as a personal computer or FA computer, or a display for RS-232-C communications.

- It enables reading and writing of all FA-M3 devices.
- It does not require a transmission application program.
- It allows reading and writing of devices even when a ladder program is not running.
- It enables direct connection to a display having a programmable controller interface.
- It enables remote running and stopping of programs on FA-M3.
- It enables loading and saving of programs.
- It enables reading of program-related information (program name, size, block name, etc.) and error logs.
- It has two personal computer link ports for simultaneous connections.

Specifications

| ltem | Speci | fication | |
|------------------------|--|------------------------|--|
| Interface | Conforms to the EIA RS-232-C standard | | |
| Transmission mode | Half-dunley | | |
| Synchronization | Start-stop synchronization | | |
| Synchronization | 200 600 1200 2400 4800 0600 14400 | | |
| Transmission speed | 19200, 28800, 38400 |), 57.6k. 115.2 kbps | |
| Transmission distance | 15 m max. | , , | |
| Number of ports | 2 (not isolated) | | |
| | Start bit | 1 | |
| Data format | Data length | 7 or 8 bits | |
| Data IUIIIat | Parity bit | None, even or odd | |
| | Stop bit | 1 or 2 bits | |
| Error detection | Parity check, checks | um | |
| Control line | RS always on, ER alv | ways on | |
| Xon/Xoff control | None | | |
| Sotup itoms | Transmission speed, | data format, | |
| Setup items | checksum, ending ch | aracter, protection | |
| Protocol | Proprietary protocol | | |
| Ending character | Yes or No | | |
| Protection feature | Yes or No | | |
| | All sequence devices, BASIC common | | |
| Access range | area, upload/download ladder program, | | |
| | RUN/STOP, read error log, read user log | | |
| | F3SP21: 2 max. | | |
| | F3SP22, F3SP25, F3SP28, F3SP35, | | |
| | F35P38, F35P53, F35P58, F35P59, F35P66 F35P67 F35P71 F35P59 | | |
| | E3BP20 and E3BP30 | | |
| Number of modules | 6 may | | |
| | * Total number of mo | dules including those | |
| | which have similar f | unctions (Ethernet | |
| | interface modules, and GP-IB | | |
| | communication modules) | | |
| Current consumption | 350 mA | | |
| External connection | D-sub 9-pin connecto | r (female), M2.6 screw | |
| External dimensions | 28.9 (W) x 100 (H) x | 83.2 (D) mm* | |
| Weight | 120 g | | |
| Surrounding air | Operating : 0 to 5 | 55°C | |
| temperature range | Storage : -20°C | C to 75°C | |
| Surrounding humidity | Operating : 10 to | 90% RH | |
| range | (non-condensing) | | |
| | Storage : 10 to 90% RH | | |
| | (non-condensing) | | |
| Surrounding atmosphere | Must be free of corro | sive gases, flammable | |
| | gases or heavy dust. | | |

Excluding protrusions (see external dimensions for details). *:



Right Side View



Note: This figure is drawn with the panel cover removed.

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Components and Functions



FA-M3

Configuration Example



F3LC12-1F Personal computer link module



External Connection Diagram

The module is connected to a personal computer or display through an RS-232-C connector.

Connector Specifications



D-sub 9-pin connector (female)

| Pin No. | Signal Name | Name | Signal Direction FA- M3 PC | Description |
|------------|----------------|------------------------|----------------------------------|---|
| 2 | RD | Receive data | ← | |
| 3 | SD | Send data | \rightarrow | |
| 4 | ER | Data Terminal ready | \rightarrow | Always output ON in RDY state |
| 5 | SG | Signal ground | \leftrightarrow | |
| 6 | DR | Data set ready | ← | Always on |
| 7 | RS | Request to send | \longrightarrow | Always output ON in RDY state |
| 8 | CS | Clear to send | ← | Always input ON. Sending not allowed when input is OFF. |

■ Cabling Example (for 25-pin device)



Note: The pin assignments on the personal computer or display shown in this example assumes a D-sub 25-pin connector.

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Cabling Example (for 9-pin device)



Note: The pin assignments on the personal computer or display shown in this example assumes a D-sub 9-pin connector.

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|--------------------|
| F3LC12 | -1F | | | Two RS-232-C ports |

External Dimensions





Unit: mm

F3LC11-2F Personal Computer Link Module

General

This F3LC11-2F Personal Computer Link Module is connected to a higher-level computer such as a personal computer or FA computer through an RS-422-A/RS-485 interface to provide a communication channel.

With the higher-level computer configured as the master station, the F3LC11-2F allows a maximum of 32 FA-M3 modules to be connected to the higher-level computer.

- It enables reading and writing of all FA-M3 devices.
- It does not require a transmission application program.
- It allows reading and writing of devices even when a ladder program is not running.
- It enables direct connection to a display having a programmable controller interface.
- It enables remote running and stopping of programs on FA-M3.
- It enables loading and saving of programs.
- It enables reading of program-related information (program name, size, block name, etc.) and error logs
- (program name, size, block name, etc.) and error logs
 Up to 32 modules can be linked through an RS-422-A/ RS-485 interface.

Specifications

| ltem | Specification | | |
|------------------------|---|----------------------------|--|
| | Conforms to the FIA RS-422-A and FIA RS-485 | | |
| Interface | standards | | |
| Transmission mode | Half-duplex, 4- or 2-wire system | | |
| Synchronization | Start-stop synchronization | | |
| Transmission anad | 300, 600, 1200, 2400, 4800, 9600, 14400 | | |
| transmission speed | 19200, 28800, 38400, 5 | 57.6k, 76.8k, 115.2 kbps | |
| Transmission media | Shielded twisted-pair ca | able (AWG20 - 16) | |
| Transmission distance | 1200 m max. | | |
| Terminating resistance | 220 Ω (built-in resistor | to be enabled for a | |
| Terminating resistance | terminal station using a | switch) | |
| Number of ports | 1 (isolated) | | |
| | Start bit | 1 | |
| Data format | Data length | 7 or 8 bits | |
| Data format | Parity bit | None, even or odd | |
| | Stop bit | 1 or 2 bits | |
| Error detection | Parity check, checksum | 1 | |
| Xon/Xoff control | None | | |
| Setup items | Transmission speed, data format, checksum, | | |
| Setup items | ending character, protection | | |
| Protocol | Proprietary protocol | | |
| Ending character | Yes or No | | |
| Protection feature | Yes or No | | |
| | All sequence devices, BASIC common area, | | |
| Access range | upload/download ladder program, RUN/STOP, | | |
| _ | read error log, read use | er log | |
| | F3SP21: 2 max. | | |
| | F3SP22, F3SP25, F3SP28, F3SP35, F3SP38, | | |
| | F3SP53, F3SP58, F3S | P59, F3SP66, F3SP67, | |
| Number of modules | F3SP71, F3SP76, F3BP20 and F3BP30: | | |
| | 6 max. | | |
| | I otal number of module | lies including those which | |
| | nave similar functions | | |
| Current consumption | 250 mA | | |
| External connection | 6 point torminal block | M3 5 scrows | |
| External dimensions | | | |
| Woight | 20.9 (W) X 100 (H) X 03 | 5.2 (D) mm | |
| Surrounding air | Operating 0 to EE | | |
| tomporature range | Operating : 0 to 55 | - 3500 | |
| Currounding humidity | Storage : -20°C t | | |
| surrounding numially | Surrounding numbers Operating : 10 to 90% RH (non-c | | |
| | Storage : 10 to 9 | U% KH (non-condensing) | |
| Surrounding atmosphere | Must be free of corrosiv | e gases, flammable | |
| | gases or heavy dust. | | |

*: Excluding protrusions (see external dimensions for details).



Components and Functions

Front View





Configuration Example

The maximum total number of linked modules is 32.



RS422-A/RS-485 Terminal Block & Cabling

Terminal Block



Wiring Diagram

(1) 4-wire System



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(2) 2-wire System



How to connect the shielding conductor (for 4-wire or 2-wire system)

- (1) Ground (connect to the SHIELD terminal) both ends of the shielding conductor of the twisted-pair cable. The SHIELD terminal of the F3LC11-2F module is connected internally to the FG terminal of the FA-M3 power supply module.
- (2) The F3LC11-2F module has a built-in terminator (220 Ω). When configuring the module at the end of a cable, set the terminator switch to either a 4- or 2-wire system.

Cables

Recommended cables for 2-wire systems:

KM80-DDD/KM81-DDD (to be purchased separately). * For details on KM80-DDD and KM81-DDD, see "FA-M3 YHLS Master Module, YHLS Slave Units and YHLS Communication Cables" (GS 34M06H46-03E).

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|--------------------------|
| F3LC11 | -2F | | | One RS-422-A/RS-485 port |

External Dimensions



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F3LC51-2N UT Link Module

General

The F3LC51-2N UT Link Module enables the FA-M3 to be easily connected to external devices such as temperature controllers that support the FA-M3 personal computer link protocol and commands.

- Data of external devices are always refreshed. The module exchanges data with the external devices by directly accessing the module's registers, without requiring a communication program.
- It can also exchange data when events occur.
- A single module can support up to 32 external devices at a maximum cable distance of 1200 m using RS-485 communications.

Specifications

| Item | Specification | | |
|---------------------------------|--|-------------------------------------|--|
| Interface | Conforms to the EIA RS-422-A and EIA RS-485 standards. | | |
| Transmission mode | Half-duplex, 4- or 2-wire system | | |
| Synchronization | Start-stop synchronization | | |
| Transmission speed | 300, 600, 1200, 2400 31250, 38400 bps | , 4800, 9600, 19200, | |
| Transmission media | Shielded twisted-pair | cable (AWG20 - 16) | |
| Transmission distance | 1200 m max. | | |
| Number of connected stations | 32 max. (depending o | on external instruments) | |
| Terminating resistance | 220 Ω (built-in resisto terminal station using | r to be enabled for a ⊨a switch) | |
| Number of ports | 1 (isolated) | | |
| | Start bit | 1 | |
| Data format | Data length | 7 or 8 bits | |
| Data format | Parity bit | None, even or odd | |
| | Stop bit | 1 or 2 bits | |
| Error detection | Parity check, checksum | | |
| Xon/Xoff control | None | | |
| Protocol | Proprietary protocol | | |
| Ending character | Yes or No | | |
| Access range | All control data | | |
| Setup items | Transmission speed, ending character | data format, checksum, | |
| Number of modules | 4 max | | |
| Current consumption | 290 mA | | |
| External connection | 6-point terminal block | , M3.5 screws | |
| External dimensions | 28.9 (W) x 100 (H) x | 83.2 (D) mm* | |
| Weight | 130 g | | |
| Surrounding air | Operating : 0 to 5 | 55°C | |
| temperature range | Storage : -20°C | C to 75°C | |
| Surrounding humidity | Operating : 10 to | 90% RH | |
| range | (non-condensing) | | |
| | Storage : 10 to | 90% RH | |
| Surrounding atmosphere | Must be free of corro | sive cases flammable | |
| Surrounding autosphere | dases or heavy dust | Sive gases, naminable | |
| L | igasso of noury dust. | | |

*: Excluding protrusions (see external dimensions for details).

Components and Functions

Front View



Node switch Sets the communication mode 9

FA-M3

Configuration Example



RS422-A/RS-485 Terminal Block & Cabling

• Terminal Block



Wiring Diagram

4-wire System



2-wire System



Note: In a 2-wire system, SDA and RDA, as well as SDB and RDB, must be shorted with a wire at the terminal block.

How to connect the shielding conductor (for 4-wire or 2-wire system)

- (1) Ground (connect to the SHIELD terminal) both ends of the shielding conductor of the twisted-pair cable. The SHIELD terminal of the F3LC51-2N module is connected internally to the FG terminal of the FA-M3 power supply module.
- (2) The F3LC51-2N module has a built-in terminator (220 Ω). When configuring the module at the end of a cable, set the terminator switch to either a 4- or 2-wire system.

Cables

Recommended cables for 2-wire systems: KM80-DDD/KM81-DDD (to be purchased separately).

* For details on KM80-DDD and KM81-DDD, see "FA-M3 YHLS Master Module, YHLS Slave Units and YHLS Communication Cables" (GS 34M06H46-03E).

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|---------------------------|
| F3LC51 | -2N | | | One RS-422A / RS-485 port |



F3RZ81-0F Ladder Communication Module (RS-232-C)

General

The F3RZ81-0F Ladder Communication Module provides RS-232-C communication capability from a sequence CPU module under the control of a ladder program. It has one port using a D-sub 9-pin connector. It can communicate with devices at a maximum distance of 15 m.

Features

- Maximum transmission rate of 115.2 kbps.
- All input relays are interrupt-capable.

Specifications

| Item | | Specification | | |
|---------------------------|---|---|--|--|
| Connecti | on method | Point to point | | |
| Transmis | sion mode | Full-duplex/half-duplex | | |
| Synchronization | | Start-stop synchronization | | |
| Communication protocol | | No protocol | | |
| Data | Character length | 7 or 8 bits | | |
| format | Stop bit length | 1 or 2 bits | | |
| | Parity bit | None, even or odd | | |
| Transmis | sion speed | 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800, or 115200 bps | | |
| | RS control | 1: Always on. 2: Turn on before sending. | | |
| Control | DR check | 1: Ignore DR when sending. 2: Send only when DR is on. | | |
| lines | CD check | 1: Ignore CD when sending. 2: Send only when CD is off. | | |
| | ER control | 1: On (ready) 2: Off (not ready) | | |
| Commu | Send buffer | Text buffer (3584 bytes max.)*1 | | |
| buffers | Receive buffer | 8192-byte rotary buffer (FIFO buffer) | | |
| | Start character | - Yes or No - Any single character | | |
| Format of | End character (terminator) | Yes or No Up to 2 characters long, any characters | | |
| received text | Text length | Can be specified as any number between 1 and 3584 ^{*1} | | |
| | Character-to -character timeout interval | 0 to 32760 ms in 1 ms increments, accurate to 1 ms (0 means not monitored) | | |
| Clear-to-s | send timeout | 0 to 32760 ms in 1 ms increments, | | |
| Interval Brook tro | nemiceion | accurate to 1 ms (0 means not monitored) | | |
| interval | 1151111551011 | accurate to 1 ms | | |
| Transmis | sion distance | 15 m max. | | |
| Number of | of ports | 1 (not isolated) | | |
| Current c | onsumption | 320 mA | | |
| External dimensions | | 28.9 (W) x 100 (H) x 83.2 (D) mm* | | |
| Weight | | 120 g | | |
| Surrounding air | | Operating : 0 to 55°C | | |
| temperature range | | Storage : -20°C to 75°C | | |
| Surround | ling humidity | Operating : 10 to 90% RH (non-condensing) | | |
| range | | Storage : 10 to 90% RH (non-condensing) | | |
| Surround atmosphe | ling ere | Must be free of corrosive gases, flammable gases or heavy dust. | | |
| * | | | | |

*: Excluding protrusions (see external dimensions for details).

*1: The send/receive data register size can be changed to accommodate up to 3584 bytes.

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FA-M3



Components and Functions

Front View



Right Side View



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 Connecting an RS-232-C Device (DTE: Data Terminal Equipment)



Note: The remote DTE is assumed to have a D-sub 25-pin connector. An example of a cable suitable for the above configuration is Yokogawa's YCB215.

Connecting a Modem (DCE: Data Communication Equipment)

Modem cable

| Connector | cover | 0 | ° | Conne | ctor cover |
|----------------------------|--------|---|----|---------|---------------|
| | | 0 | L0 | 1 (FG) | |
| | (SD) 3 | 0 | 0 | 2 (SD) | |
| | (RD) 2 | 0 | 0 | 3 (RD) | Pomoto DCE |
| F3RZ81-0F | (RS) 7 | 0 | 0 | 4 (RS) | (25-pin D-sub |
| (9-pin D-sub connector) | (CS) 8 | 0 | 0 | 5 (CS) | connector) |
| , | (DR) 6 | 0 | 0 | 6 (DR) | |
| | (SG) 5 | 0 | 0 | 7 (SG) | |
| | (CD) 1 | 0 | 0 | 8 (CD) | |
| | (ER) 4 | 0 | 0 | 20 (ER) | |
| | | | | | |

Note: The remote DCE is assumed to have a D-sub 25- pin connector. An example of a cable suitable for the above configuration is Yokogawa's YCB211.

How to connect the shielding conductor (for DTE or DCE)

- Use a cable with connectors protected by metal covers or metal-plated covers. Connect the shielding conductor directly to the metal covers.
- (2) The connector shell of the F3RZ81-0F module is connected internally to the FG terminal of the FA-M3 power supply module.
- Connector Specifications



9-pin D-sub connector (female)

| _ | | | | | | |
|--------|------------|----------------|---------------------------|---------------------------------|---------------------|--|
| P N | 'in Io. | Signal Name | Name | Signal Direction FA-M3 PC | Signal Monitored | Description* |
| | 1 | CD | Data carrier detect | | Yes | Sends data as follows: 1. Ignore CD when sending (default). 2. Send only when CD is off. |
| | 2 | RD | Receive data | ← | _ | |
| | 3 | SD | Send data | $ \longrightarrow $ | | |
| - | 4 | ER | Data terminal ready | \rightarrow | | On when powered (default). On/off by software. |
| | 5 | SG | Signal ground | \longleftrightarrow | | |
| | 6 | DR | Data set ready | ~ | Yes | Used to check whether the remote station can receive data. 1. Ignore DR when sending (default). 2. Send data only when DR is on. |
| | 7 | RS | Request to send | \rightarrow | | Used when sending data to the remote station. 1. Always on (default). 2. Turn on before sending |
| ; | 8 | CS | Clear to send | ~ | Yes | Clear to send signal from the remote station. The module can send data only when this signal is on. |
| 2 | 9 | — | (Not | — | _ | |

*: Specify 1 or 2 using software.

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|--------------------------|
| F3RZ81 | -0F | | | 115200 bps max., 1 ports |



F3RZ82-0F Ladder Communication Module (RS-232-C)

General

The F3RZ82-0F Ladder Communication Module provides RS-232-C communication capability from a sequence CPU module under the control of a ladder program. It has two ports using two D-sub 9-pin connectors. It can communicate with devices at a maximum distance of 15 m.

Features

- The two ports operate independently at a maximum transmission rate of 115.2 kbps.
- All input relays are interrupt-capable.

Specifications

| Item | | Specification | | | |
|---------------------|---|---|--|--|--|
| Connection method | | Point to point | | | |
| Transmission mode | | Full-duplex/half-duplex | | | |
| Synchronization | | Start-stop synchronization | | | |
| Commun protocol | ication | No protocol | | | |
| Data | Character length | 7 or 8 bits | | | |
| format | Stop bit length | 1 or 2 bits | | | |
| | Parity bit | None, even or odd | | | |
| Transmis | sion speed | 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800, or 115200 bps | | | |
| | RS control | 1: Always on. 2: Turn on before sending. | | | |
| Control | DR check | 1: Ignore DR when sending. 2: Send only when DR is on. | | | |
| lines | CD check | 1: Ignore CD when sending. 2: Send only when CD is off. | | | |
| | ER control | 1: On (ready) 2: Off (not ready) | | | |
| Commu | Send buffer | Text buffer (3584 bytes max.)*1 | | | |
| buffers | Receive buffer | 8192-byte rotary buffer (FIFO buffer) | | | |
| | Start character | Yes or No Any single character | | | |
| Format of | End character (terminator) | Yes or No Up to 2 characters long, any characters | | | |
| received text | Text length | Can be specified as any number between 1 and 3584 ^{*1} | | | |
| | Character-to -character timeout interval | 0 to 32760 ms in 1 ms increments, accurate to 1 ms (0 means not monitored) | | | |
| Clear-to-s | send timeout | 0 to 32760 ms in 1 ms increments, accurate to 1 ms (0 means not monitored) | | | |
| Break tra | nsmission | 1 to 32760 ms in 1 ms increments, accurate to 1 ms | | | |
| Transmis | sion distance | 15 m max. | | | |
| Number of | of ports | 2 (not isolated) | | | |
| Current consumption | | 350 mA | | | |
| External dimensions | | 28.9 (W) x 100 (H) x 83.2 (D) mm* | | | |
| Weight | | 120 g | | | |
| Surrounding air | | Operating : 0 to 55°C | | | |
| temperati | ure range | Storage : -20°C to 75°C | | | |
| Surround | ling humidity | Operating : 10 to 90% RH (non-condensing) | | | |
| lange | | Storage : 10 to 90% RH (non-condensing) | | | |
| Surround | ling | Must be free of corrosive gases, flammable gases | | | |
| *· Exc | udina protrusia | on neavy dust. | | | |

*1: The send/receive data register size can be changed to accommodate up to 3584 bytes.

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Front View



Right Side View





 Connecting an RS-232-C Device (DTE: Data Terminal Equipment)



Note: The remote DTE is assumed to have a D-sub 25-pin connector. An example of a cable suitable for the above configuration is Yokogawa's YCB215.

Connecting a Modem (DCE: Data Communication Equipment)

Modem cable

| Connector | over | 0 | + | Conne | ctor cover |
|---|--------|---|----|---------|---------------|
| | | 0 | L0 | 1 (FG) | |
| | (SD) 3 | 0 | 0 | 2 (SD) | |
| F3RZ82-0F (9-pin D-sub connector) | (RD) 2 | 0 | 0 | 3 (RD) | Domoto DCE |
| | (RS) 7 | 0 | 0 | 4 (RS) | (25-pin D-sub |
| | (CS) 8 | 0 | 0 | 5 (CS) | connector) |
| | (DR) 6 | 0 | 0 | 6 (DR) | |
| | (SG) 5 | 0 | 0 | 7 (SG) | |
| | (CD) 1 | 0 | 0 | 8 (CD) | |
| | (ER) 4 | 0 | 0 | 20 (ER) | |

Note: The remote DCE is assumed to have a D-sub 25- pin connector. An example of a cable suitable for the above configuration is Yokogawa's YCB211.

How to connect the shielding conductor (for DTE or DCE)

- Use a cable with connectors protected by metal covers or metal-plated covers. Connect the shielding conductor directly to the metal covers.
- (2) The connector shell of the F3RZ82-0F module is connected internally to the FG terminal of the FA-M3 power supply module.

Connector Specifications



9-pin D-sub connector (female)

| Pin No. | Signal Name | Name | Signal Direction FA- M3 PC | Signal Monitored | Description* |
|------------|----------------|---------------------------|----------------------------------|---------------------|--|
| 1 | CD | Data carrier detect | ← | Yes | Sends data as follows: Ignore CD when sending (default). Send only when CD is off. |
| 2 | RD | Receive data | ← | _ | |
| 3 | SD | Send data | \rightarrow | — | |
| 4 | ER | Data terminal ready | \rightarrow | _ | On when powered (default). On/off by software. |
| 5 | SG | Signal ground | \longleftrightarrow | _ | |
| 6 | DR | Data set ready | ← | Yes | Used to check whether the remote station can receive data. 1. Ignore DR when sending (default). 2. Send data only when DR is on. |
| 7 | RS | Request to send | \rightarrow | | Used when sending data to the remote station. 1. Always on (default). 2. Turn on before sending |
| 8 | CS | Clear to send | ← | Yes | Clear to send signal from the remote station. The module can send data only when this signal is on. |
| 9 | _ | (Not used) | _ | _ | |

*: Specify 1 or 2 using software.

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|--------------------------|
| F3RZ82 | -0F | | | 115200 bps max., 2 ports |



F3RZ91-0F Ladder Communication Module (RS-422-A/RS-485)

General

The F3RZ91-0F Ladder Communication Module provides RS-422-A or RS-485 communication capability from a sequence CPU module under the control of a ladder program. It has one port using a terminal block. It can communicate with devices at a maximum distance of 1200 m.

Features

- The maximum transmission rate is 115.2 kbps.
- All input relays are interrupt-capable.

Specifications

| | ltem | Specification | | | | |
|---------------------------|---|--|--|--|--|--|
| Connecti | on method | Point to point | | | | |
| Transmission mode | | Full-duplex/half-duplex | | | | |
| Synchronization | | Start-stop synchronization | | | | |
| Commun protocol | ication | No protocol | | | | |
| Data | Character length | 7 or 8 bits | | | | |
| format | Stop bit length | 1 or 2 bits | | | | |
| | Parity bit | None, even or odd | | | | |
| Transmis | sion speed | 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800, or 115200 bps | | | | |
| Commu | Send buffer | Text buffer (1792 bytes max.)*1 | | | | |
| nication buffers | Receive buffer | 8192-byte rotary buffer (FIFO buffer) | | | | |
| | Start character | - Yes or No - Any single character | | | | |
| Format of | End character (terminator) | Yes or No Up to 2 characters long, any characters | | | | |
| received text | Text length | Can be specified as any number between 1 and 1792 ^{*1} | | | | |
| | Character-to -character timeout interval | 0 to 32760 ms in 1 ms increments, accurate to 1 ms (0 means not monitored) | | | | |
| Break tra interval | nsmission | 1 to 32760 ms in 1 ms increments, accurate to 1 ms | | | | |
| Transmis | sion distance | 1200 m max. | | | | |
| Number of | of ports | 1 (isolated) | | | | |
| Current of | consumption | 350 mA | | | | |
| External | dimensions | 28.9 (W) x 100 (H) x 83.2 (D) mm* | | | | |
| Weight | | 120 g | | | | |
| Surround | ling air | Operating : 0 to 55°C | | | | |
| temperat | urerange | Storage : -20°C to 75°C | | | | |
| Surround | ling humidity | Operating : 10 to 90% RH (non-condensing) | | | | |
| range | | Storage : 10 to 90% RH (non-condensing) | | | | |
| Surrounding atmosphere | | Must be free of corrosive gases, flammable gases o heavy dust. | | | | |
| * | luding protruci | iona (ana avtarnal dimanajana far dataila) | | | | |

*: Excluding protrusions (see external dimensions for details).

*1: The send/receive data register size can be changed to accommodate up to 1792 bytes.

Components and Functions



 \square

This switch is not used.
 This figure is drawn with the panel cover removed.

FA-M3

Point-to-point Configuration

(1) 4-wire System



(2) 2-wire System



Note: In a 2-wire system, SDA and RDA, as well as SDB and RDB, must be shorted with a wire at the terminal block.

How to connect the shielding conductor (for 4-wire or 2-wire system)

- (1) Ground (connect to the SHIELD terminal) both ends of the shielding conductor of the twisted-pair cable. The SHIELD terminal of the F3RZ91-0F module is connected internally to the FG terminal of the FA-M3 power supply module.
- (2) The F3RZ91-0F module has a built-in terminator (220 Ω). When configuring the module at the end of a cable, set the terminator switch to either a 4- or 2-wire system.

Terminal Block



Cables

Recommended cables for 2-wire systems: KM80-DDD/KM81-DDD (to be purchased separately). * For details on KM80-DDD and KM81-DDD, see "FA-M3 YHLS Master Module, YHLS Slave Units and YHLS Communication Cables" (GS 34M06H46-03E).

Operating Environment

There is no restriction on the type of CPU modules that can be used with this module.

Model and Suffix Codes

| Model | Suffix Code | Style Code | Option Code | Description |
|--------|----------------|---------------|----------------|-------------------------|
| F3RZ91 | -0F | | | 115200 bps max., 1 port |

External Dimensions





Unit: mm

16