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General Specifications

F3LP02-0N FA Link H Module

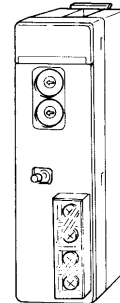
FA-M3

General

The F3LP02-0N FA Link H Module provides a high-speed network that allows information exchange between the FA-M3 Range-free Multi-controllers.

The F3LP02-0N is an FA link H interface module that provides a maximum of 32 stations of data link (one module is counted as one station).

- It allows a maximum of eight modules to be installed in a single FA-M3 main unit, to make up a multi-layer data link. The module can be accessed only from a designated CPU.
- The number of link points can be specified arbitrarily for each CPU.
- Bus-type communication channels are employed to facilitate the expansion of modules.
- FA Link H Modules can be connected easily using a two-twisted-pair (4-wire) shielded cable.



Specifications

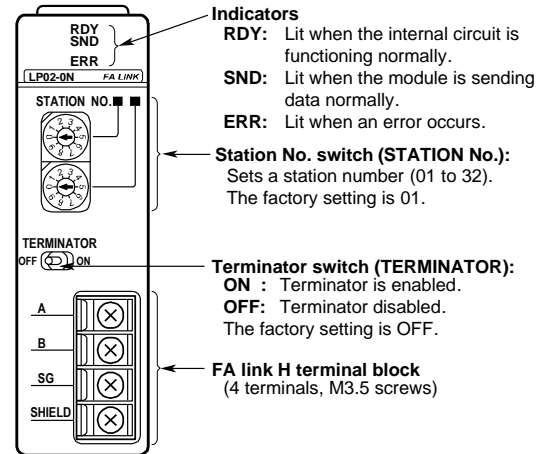
Item	Specification
Number of stations	32 max.
Link relays	2048 per module - F3SP05/08 and F3SP21: 2048 - F3SP22/25/28/35/53/66 and F3SP71-4S: 8192 (non-continuous) - F3SP38/58/59/67 and F3SP76-7S: 16,384 (non-continuous)
Link register	2048 per module - F3SP05/08 and F3SP21: 2048 - F3SP22/25/28/35/53/66 and F3SP71-4S: 8192 (non-continuous) - F3SP38/58/59/67 and F3SP76-7S: 16,384 (non-continuous)
Maximum. Number of links per station	Same as above.
Link relay and link register assignments	Link relay: on 16-relay basis Link register: on per register basis
Number of modules	F3SP05/08 and F3SP21: 2 max. F3SP22, F3SP25, F3SP28, F3SP35, F3SP38, F3SP53, F3SP58/59, F3SP66/67, F3SP71-4S and F3SP76-7S: 8 max.
Transmission speed	125 K, 250 K, 625 K or 1.25 Mbps (switch selectable)
Transmission channel type	1-bus type
Termination resistance	110 Ω at both ends (specified by a built-in switch when the line is terminated)
Transmission distance	1 km, 500 m, 250 m or 100 m (depends on transmission speed)
Communication system	Token-bus system
Synchronization	Frame synchronization
Transmission format	Conforms to HDLC.
Modulation and encoding system	NRZI system
Error detection	CRC-CCITT, timeout
RAS features	Error detection through local loopback, hardware self-diagnostics, special relay and register functions
Transmission media	Two-twisted-pair (4-wire) shielded cable (AWG20)
Current consumption	470 mA
External connection	4-point terminal block, M3.5 screws
External dimensions	28.9 (W) x 100 (H) x 83.2 (D) mm ^(Note)
Weight	120 g
Surrounding air temperature range	Operating : 0 to 55°C Storage : -20°C to 75°C
Surrounding humidity range	Operating : 10 to 90% RH (non-condensing) Storage : 10 to 90% RH (non-condensing)
Surrounding atmosphere	Must be free of corrosive gases, flammable gases or heavy dust.

Note: The given dimensions exclude protrusions (See "External Dimensions" for details).

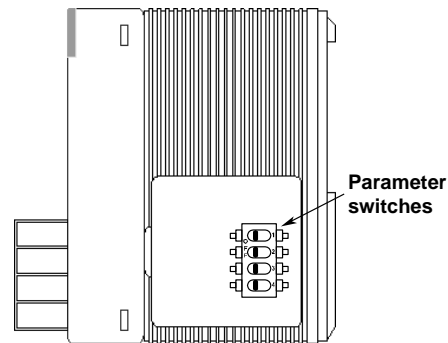
Note: F3LP02-0N is not compatible with F3SP71-4N and F3SP76-7N.

Components and Functions

■ Front View



■ Right Side View

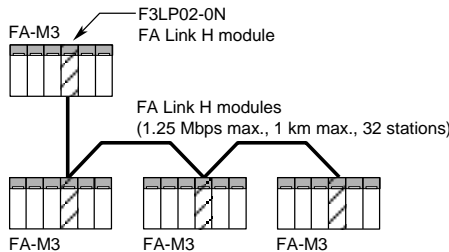


Note: This figure is drawn with the panel cover removed.

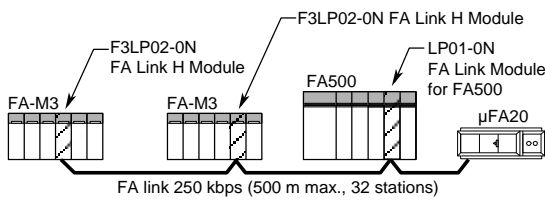
No.	Parameter	OFF	ON	Factory setting	Switch	
					No.1	No.2
1	Transmission speed	See table to the right.		OFF	OFF	1.25 Mbps
					ON	250 Kbps
2	Operation mode	Normal	High speed	OFF	625 Kbps	125 Kbps
		—	—	OFF		
3	(Not used)	—	—	OFF		

System Configuration Example

1. Connecting between FA-M3 Controllers
The F3LP02-0N can be used to configure a system in which communication speed can be as high as 1.25 Mbps.

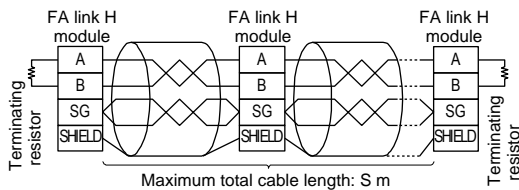


2. Connecting between FA-M3 Controllers, FA500 and μFA20



- Set the transmission speed of the FA Link H module to 250 kbps.

External Connection Diagram



1. The maximum total cable length (S) varies depending on the transmission speed used.
2. The SHIELD terminal of this module is internally connected to the FG terminal of the FA-M3 power supply module.
3. This module has a built-in terminator. When configuring the module at the end of the cable, set the terminator switch to ON.

Cables

Use two-pair (4-wire) shielded cable (impedance 100 Ω) when connecting FA Link H modules.

Recommended cables: KM80-□□□/KM81-□□□ (to be purchased separately).

* For details on KM80-□□□ and KM81-□□□, see "FA-M3 YHLS Master Module, YHLS Slave Units and YHLS Communication Cables (for implementing high-speed remote I/O) (GS 34M06H46-03E).

Operating Environment

- The table below lists the CPU modules that can be used with this module.

CPU Module	Style No. and ROM Rev.
F3SP21, F3SP25 and F3SP35	S1 Rev. 8 or later
F3SP05/08, F3SP22, F3SP28, F3SP38, F3SP53/58/59, F3SP66/67, F3SP71-4S, F3SP76-7S	—

Note: For the revision number of a CPU module, see the revision number label on the side panel.

- The following table summarizes the requirements for the Ladder Diagram Support Program M3, which can be used to set up the communications conditions of this module. All versions of the Ladder Programming Tool WideField3, WideField2 and WideField can be used with this module.

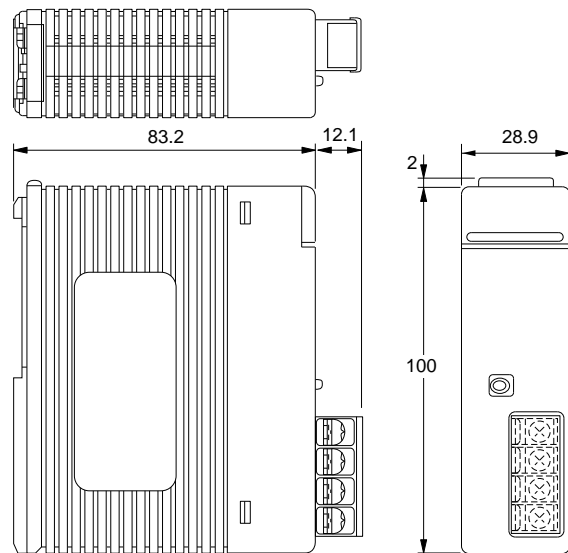
Ladder Diagram Support Program M3	Revision
SF510-E3□	Rev. 1.08 or later

Model and Suffix Codes

Model	Suffix Code	Style Code	Option Code	Description
F3LP02	-0N	.....	.....	32 stations max. 125 k, 250 k, 625 k or 1.25 Mbps 1 km, 500 m, 250 m or 100 m

External Dimensions

Unit:mm



FB0251.VSD

General Specifications

F3LP12-0N Fiber-optic FA Link H Module

FA-M3

General

The F3LP12-0N Fiber-optic FA Link H Module is a high-speed network that allows information exchange between the FA-M3 Range-free Multi-controllers.

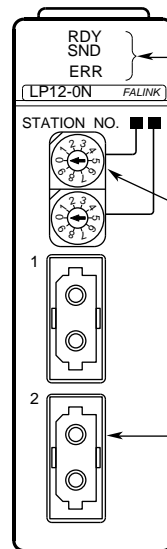
The F3LP12-0N is a Fiber-optic FA link H interface module that provides a maximum of 32 stations of data link (one module is counted as one station).

- It allows a maximum of eight modules to be installed in a single FA-M3 main unit, to making up a multi-layer data link. The module can only be accessed from a designated CPU.
- The number of link points can be specified arbitrarily for each CPU.
- It supports daisy-chain configuration using fiber-optic cables.
- It does not guarantee normal data link in the entire network if any one station on the network is powered off.



Components and Functions

■ Front View



Indicators

- RDY:** Lit when the internal circuit is functioning normally.
- SND:** Lit when the module is sending data normally.
- ERR:** Lit when an error occurs.

Station No. switch (STATION No.):
Sets a station number (01 to 32).
The factory setting is 01.

Fiber-optic connector
Attach a dust cap in the port not used.

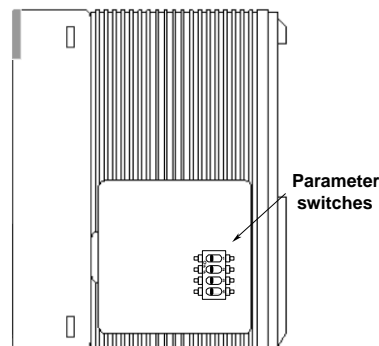
F0323.VSD

Specifications

Item	Specification
Number of stations	32 max.
Link relays	2048 per module - F3SP05/08 and F3SP21: 2048 - F3SP22/25/28/35/53, 66 and F3SP71-4S: 8192 (non-continuous) - F3SP38/58/59/67 and F3SP76-7S : 16,384 (non-continuous)
Link registers	2048 per module - F3SP05/08 and F3SP21: 2048 - F3SP22/25/28/35/53/66 and F3SP71-4S: 8192 (non-continuous) - F3SP38/58/59/67 and F3SP76-7S: 16,384 (non-continuous)
Max. number of links per station	Same as above.
Link relay and link register assignments	Link relay: on 16-relay basis Link register: on per register basis
Number of modules	F3SP05/08 and F3SP21: 2 max. F3SP22, F3SP25, F3SP28, F3SP35, F3SP38, F3SP53, F3SP58/59, F3SP66/67, F3SP71-4S, F3SP76-7S: 8 max.
Transmission speed	1.25 Mbps
Transmission channel type	Daisy chain
Transmission distance	Maximum total distance: 10 km Maximum distance between stations: 1 km
Communication system	Token ring
Synchronization	Frame synchronization
Transmission format	Conforms to HDLC.
Modulation and encoding system	NRZI system
Error detection	CRC-CCITT
RAS feature	Self-diagnostics
Transmission media	2-core optical fiber (hard plastic clad quartz fiber-optic H-PCF)
Current consumption	495 mA
External dimensions	28.9 (W) x 100 (H) x 83.2 (D) mm
Weight	110 g
Surrounding air temperature range	Operating : 0 to 55°C Storage : -20°C to 75°C
Surrounding humidity range	Operating : 10 to 90% RH (non-condensing) Storage : 10 to 90% RH (non-condensing)
Surrounding atmosphere	Must be free of corrosive gases, flammable gases or heavy dust.

Note: F3LP12-0N is not compatible with F3SP71-4N and F3SP76-7N.

■ Right Side View

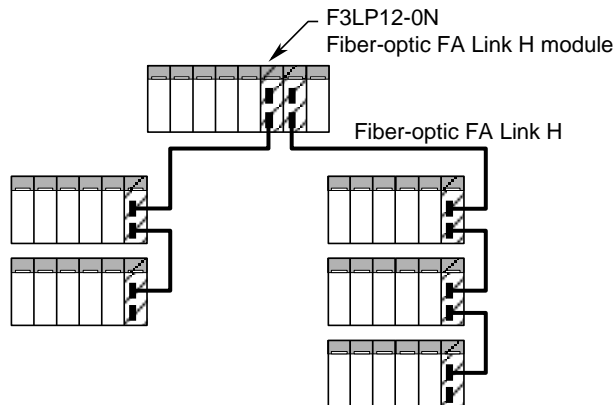


Note: This figure is drawn with the panel cover removed.

No.	Parameter	OFF	ON	Factory setting
1	Intermediate station	Terminal station	Intermediate station	OFF
2	(Not used)	—	—	OFF
3	Operation mode	Normal	High speed	OFF
4	(Not used)	—	—	OFF

Configuration Example

■ Daisy-chain configuration



1. The maximum distance between stations is 1 km and the maximum total distance is 10 km.
2. The attached blank cover must be placed on any unused port of the terminating station.

Operating Environment

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

CPU Module	Style No. and ROM Rev.
F3SP21, F3SP25 and F3SP35	S1 Rev. 8 or later
F3SP05, F3SP 08, F3SP22, F3SP28, F3SP38, F3SP53/58/59, F3SP66/67, F3SP71-4S, F3SP76-7S	—

Note: For the revision number of a CPU module, see the revision number label on the side panel.

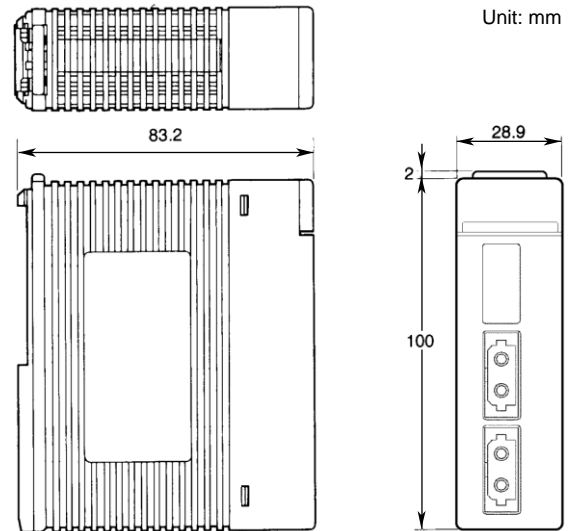
- The following table summarizes the requirements for the Ladder Diagram Support Program M3, which can be used to set up the communications conditions of this module. All versions of the Ladder Programming Tool WideField3, WideField2 and WideField can be used with this module.

Ladder Diagram Support Program M3	Revision
SF510-E3□	Rev. 1.08 or later

Model and Suffix Codes

Model	Suffix Code	Style Code	Option Code	Description
F3LP12	-0N	.....	.....	32 stations max. Maximum total distance: 10 km Maximum distance between stations: 1 km 1.25Mbps

External Dimensions



Optional Accessories

The customer should prepare fiber-optic cables satisfying the requirements listed below when connecting between Fiber-optic FA Link H modules. See Fiber-optic Cables (GS34M06C92-01E) for details on fiber-optic cables.

■ Specifications for Fiber-optic Cable Cores

Yokogawa Cable Model Number	KM60	KM60, KM61, KM62, KM65
Fiber-optic Cable Model No. (Size)	DK-HPF200/230	2×CCV-HC-20/07
Fiber-optic Cable type	SI type※1	SI type※1
Vendor	SWCC Showa Cable System	Sumitomo Electric Industries
Core diameter	200±5μm	
Clad diameter	230 ⁺⁰ ₋₁₀ μm	
Transmission loss	7.0dB/km Max. (λ=0.85μm, Ta=25°C)	7dB/km Max. (λ=0.81μm, Ta=25°C)

※1 : Step-index optical fiber

■ Specifications for Fiber-optic Cable Connectors

Yokogawa Cable Model Number	KM60	KM65	KM60, KM61, KM62
Optical connectors Model No.	KF-07	CF-2011 CF-2071	CF-2001H CF-2071H
Vendor	SWCC Showa Cable Systems	Sumitomo Electric Industries	Sumitomo Electric Industries
Specifications	Bi-directional, lever lock bonding, polished	Bi-directional, lever lock, crimping, cut	Bi-directional, lever lock bonding, polished

General Specifications

F3LR01-0N Fiber-optic FA-bus Module

FA-M3

General

The F3LR01-0N is an interface module for constructing a system that requires distributed placement of multiple modules. The user can build up an efficient remote I/O system by installing F3LR01-0N modules in the FA-M3 main- and sub-units and connecting them via a fiber-optic FA-bus (fiber-optic cable).

- With the 10-Mbps high-speed communications capability of the F3LR01-0N, the user does not have to worry about the I/O refresh time in ladder programming.
- All I/O module types and most special module types* can be installed in sub-units and accessed just like modules installed in the main unit.
- * : See "Restrictions on System Configuration"
- No specific communications setup (environment setup) is required.
- The optical transmission system makes the F3LR01-0N highly immune to noise.

Specifications

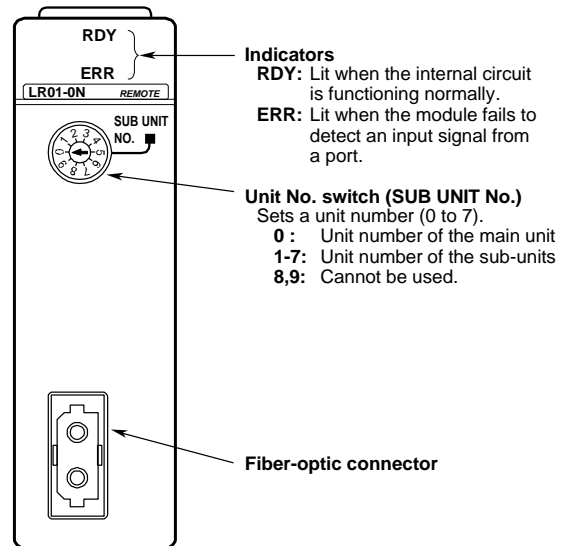
Item	Specification
Transmission speed	10 Mbps
Transmission media	2-core optical fiber (hard plastic clad quartz fiber-optic H-PCF)
Transmission distance	Maximum total distance: 200 m Maximum distance between stations: 200 m
Transmission configuration	Star
Maximum number of sub-units (systems)	7 (systems)
RAS features	Shutdown I/O contact output on transmission channel error, reporting of transmission channel error location
Current consumption	220 mA
External dimensions	28.9 (W) x 100 (H) x 83.2 (D) mm
Weight	100 g
Surrounding air temperature range	Operating : 0 to 55°C Storage : -20°C to 75°C
Surrounding humidity range	Operating : 10 to 90% RH (non-condensing) Storage : 10 to 90% RH (non-condensing)
Surrounding atmosphere	Must be free of corrosive gases, flammable gases or heavy dust.

Note: The maximum number of systems when μ -bus master station module are used is 1 system less than the value above for each μ -bus master station.

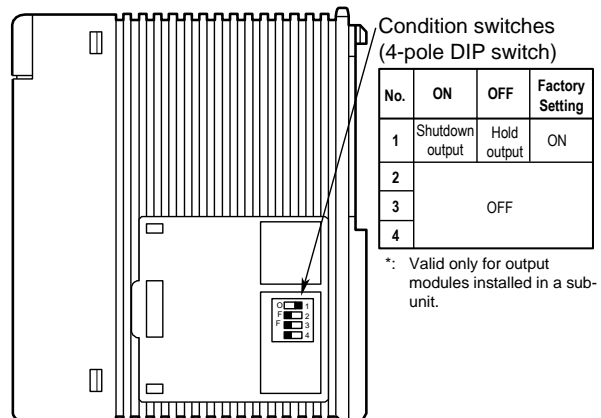


Components and Functions

■ Front View



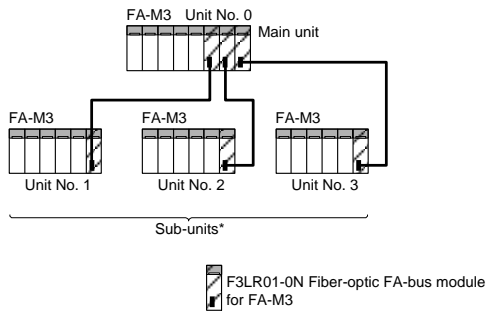
■ Right Side View



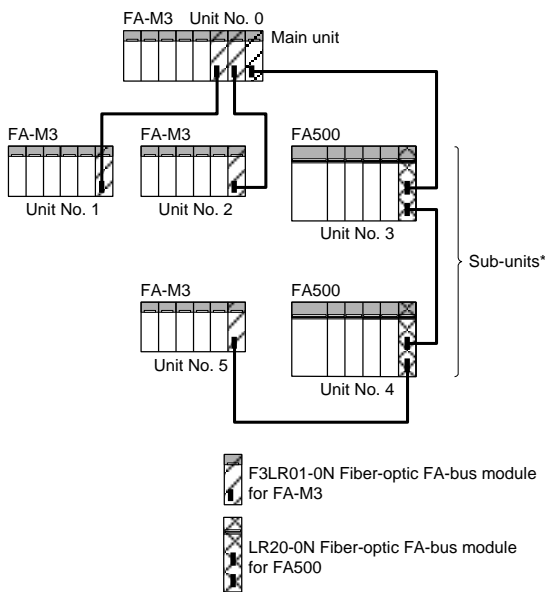
Note: This figure is drawn with the panel cover removed.

System Configuration Example

■ Star Configuration



■ Daisy-chain + Star Configuration



*: Maximum number of sub-units: 7

Restrictions on System Configuration

Item	Description
Maximum total distance	200 m
Number of connectable sub-units	7 max.
Number of fiber-optic FA-bus modules installable in a main unit	7 max. (no restrictions on the installation location)
Number of fiber-optic FA-bus modules installable in a sub-unit	1 (no restrictions on the installation location)
Modules installable in a sub-unit	All I/O modules, and special modules except F3LP□□, F3LE01, F3LX0□ and F3NX01 modules.

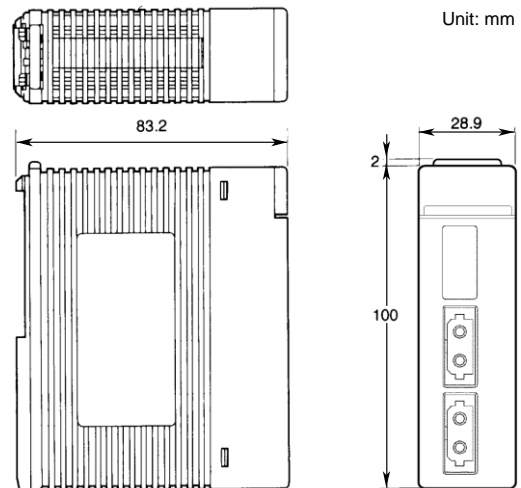
Operating Environment

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
F3LR01	-0N	.....	.....	Maximum total distance: 200 m Maximum distance between stations: 200 m

External Dimensions



Optional Accessories

Prepare fiber-optic cables satisfying the requirements listed below when connecting Fiber-optic FA-bus modules for extension. See Fiber-optic Cables (GS 34M06C92-01E) for details on fiber-optic cables.

■ Specifications for Fiber-optic Cable Cores

Yokogawa Cable Model Number	KM60	KM60,KM61,KM62,KM65,KM69
Fiber-optic Cable Model No. (Size)	DK-HPF200/230	2×CCV-HC-20/07
Fiber-optic Cable type	SI type*1	SI type*1
Vendor	SWCC Showa Cable System	Sumitomo Electric Industries
Core diameter	200±5μm	
Clad diameter	230 ⁺⁰ ₋₁₀ μm	
Transmission loss	7.0dB/km Max. (λ=0.85μm, Ta=25°C)	7dB/km Max. (λ=0.81μm, Ta=25°C)

*1 : Step-index optical fiber

■ Specifications for Fiber-optic Cable Connectors

Yokogawa Cable Model Number	KM60	KM65	KM60,KM61,KM62,KM67,KM69
Optical connectors Model No.	KF-07	CF-2011 CF-2071	CF-2001H CF-2071H
Vendor	SWCC Showa Cable Systems	Sumitomo Electric Industries	Sumitomo Electric Industries
Specifications	Bi-directional, lever lock bonding, polished	Bi-directional, lever lock, crimping, cut	Bi-directional, lever lock bonding, polished

General Specifications

F3LR02-0N Fiber-optic FA-bus Type 2 Module

FA-M3

General

The F3LR02-0N is an interface module for constructing a system that requires distributed placement of multiple modules. The user can build up an efficient remote I/O system by installing F3LR02-0N modules in the FA-M3 main- and sub-units and connecting them via a fiber-optic FA-bus (fiber-optic cable).

- With the 10-Mbps high-speed communication capability of the F3LR02-0N, the user does not have to worry about the I/O refresh time in ladder programming.
- All I/O module types and most special module types* can be installed in sub-units and accessed just like modules installed in the main unit.
 - * : See "Restrictions on System Configuration"
- No specific communication setup (environment setup) is required.
- The optical transmission system makes the F3LR02-0N highly immune to noise.
- A single sub-unit can be segmented into a maximum of 8 stations.
- A 2-port (send/receive) system allows daisy-chain configuration.
- The loop system is switched into two pairs of daisy-chain systems when a disconnection occurs in the system, thereby improving system reliability.

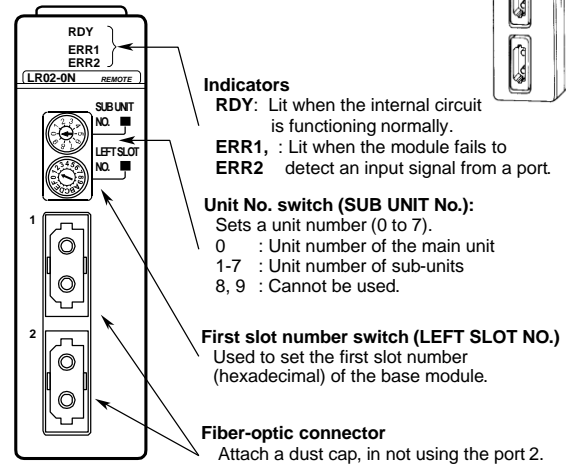
Specifications

Item	Specification
Transmission speed	10 Mbps
Transmission media	2-core optical fiber (hard plastic clad quartz fiber-optic H-PCF)
Transmission distance	Maximum distance between stations: 500 m Maximum total distance: 1.4 km (3 stations)
Transmission configuration	Star, daisy chain, loop
Maximum number of sub-stations	56
Maximum number of systems	7 (Note)
Maximum number of sub-stations per system	32
Maximum total distance per system	1.4 km (3 stations)
Maximum distance between stations	500 m
RAS features	Shutdown I/O contact output on transmission channel error, reporting of transmission channel error location
Current consumption	460 mA
External dimensions	28.9 (W) x 100 (H) x 83.2 (D) mm
Weight	120 g
Surrounding air temperature range	Operating : 0 to 55°C Storage : -20°C to 75°C
Surrounding humidity range	Operating : 10 to 90% RH (non-condensing) Storage : 10 to 90% RH (non-condensing)
Surrounding atmosphere	Must be free of corrosive gases, flammable gases or heavy dust.

Note: The maximum number of systems when μ-bus master station module are used is 1 system less than the value above for each μ-bus master station.

Components and Functions

Front View



Condition Switches

No.	Meaning	OFF	ON	Factory set
1 ^{*1}	Hold/reset output on communication error	Hold ^{*2} output	Shutdown output	ON
2	Port used	Port 1	Both ports ^{*3}	OFF
3	Channel configuration	Daisy chain or star	Loop	OFF
4	Reserved	—	—	OFF

*1: Valid only for output modules installed in a sub-unit.

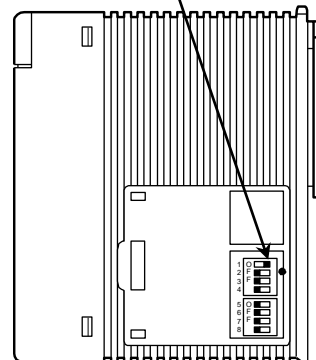
*2: Continues operation if transmission channel has been secured and system operation is continued.

*3: Both port 1 and port 2 are used.

Light Power Setup Switches

No.	Meaning	Distance between stations (Fiber-optic cable length) (m)							
		ON	OFF	ON	OFF	ON	OFF	ON	OFF
5	Port 1 intensity	OFF	0 - 200	ON	200 - 300	OFF	300 - 400	ON	400 - 500
6		OFF	0 - 200	ON	200 - 300	OFF	300 - 400	ON	400 - 500
7	Port 2 intensity	OFF	0 - 200	ON	200 - 300	OFF	300 - 400	ON	400 - 500
8		OFF	0 - 200	ON	200 - 300	OFF	300 - 400	ON	400 - 500

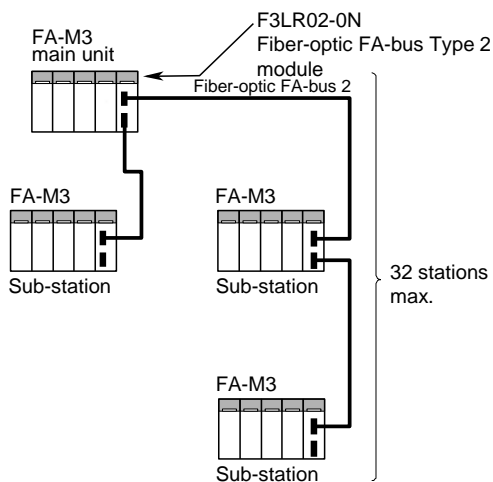
Right Side View



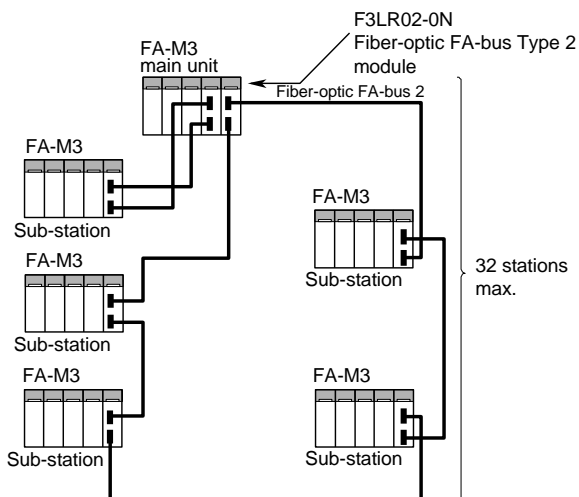
Note: This figure is drawn with the panel cover removed.

System Configuration Example

■ Daisy-chain configuration



■ Loop configuration



Restrictions on System Configuration

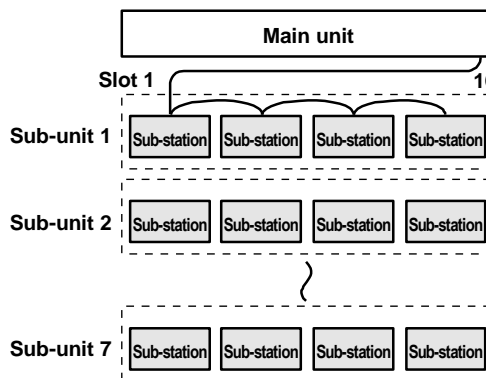
Item	Description
Number of Fiber-optic FA-bus Type 2 modules installable in a master station	7 (In case of subunit split : 15)
Number of Fiber-optic FA-bus Type 2 modules installable in a sub-station	1
Modules installable in a sub-station	All I/O modules, and special modules except F3LP□□, F3LE01, F3LX0□ and F3NX01 modules.

Substation Configuration

- Substation Configuration Example

The user can configure two or more sub-stations by splitting a sub-unit using the fiber-optic FA-bus type 2. A sub-unit logically consists of 16 slots.

A maximum of 7 sub-units can be used with the main unit.



- Subunit Split Patterns

Sub-units can be split in several patterns. Select an appropriate pattern according to the configuration of your system.

Split pattern	Slot No.																Number of sub-stations
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
①	F3BU09								F3BU04								2
②	F3BU06				F3BU06				F3BU06				F3BU06				2
③	F3BU06				F3BU04				F3BU04				F3BU04				3
④	F3BU04				F3BU04				F3BU06				F3BU04				3
⑤	F3BU04				F3BU04				F3BU04				F3BU04				4
⑥	F3BU04	Free	F3BU04	Free	F3BU04	Free	F3BU04	Free	F3BU04	Free	F3BU04	Free	F3BU04	Free	F3BU04	Free	8

When pattern (3) is used, for example, it is possible to connect together up to 7 sub-units, providing a maximum of 21 stations. A 32-station system (maximum configurable system) can be configured by combining 6 sets of pattern (5) and 1 set of pattern (6). The number of I/O modules that can be installed in pattern (6) is 1 module per sub-station.

Number of Sub-stations and Maximum Total Distance (m)

Number of Sub-stations	Maximum Total Distance (m)		Number of Sub-stations	Maximum Total Distance (m)
	Daisy-chain configuration	Loop configuration		
1	500	1000	17	880
2	1000	1500	18	840
3		1420	19	800
4		1380	20	760
5		1340	21	730
6		1300	22	690
7		1260	23	650
8		1230	24	610
9		1190	25	570
10		1150	26	530
11		1110	27	500
12		1070	28	460
13		1030	29	420
14		1000	30	380
15		960	31	340
16		920	32	300

Do not lay cables such that the actual fiber-optic cable length exceeds the Maximum total distance, or the distance between two stations exceeds the maximum distance allowed between stations (500 m).

Operating Environment

- The following table lists the type of CPU modules that can be used with this module.

CPU Module	Style No. and ROM Rev. *1
F3SP21, F3SP25 and F3SP35	S1 Rev. 8 or later*2
F3SP05/08, F3SP22, F3SP28, F3SP38, F3SP53/58/59, F3SP66/67, F3SP71/76	—
F3BP20, F3BP30 and F3FP36	—

*1: For the revision number of a CPU module, see the revision number label on the side panel.

*2: Supports logging of transmission channel error location.

- The following table summarizes the requirements for the Ladder Diagram Support Program M3, which can be used to set up the communications conditions of this module. All versions of the Ladder Programming Tool WideField2 and WideField3 can be used with this module.

Ladder Diagram Support Program M3	Revision
SF510-E3□	Rev. 1.08 or later

*: Supports logging of transmission channel error location.

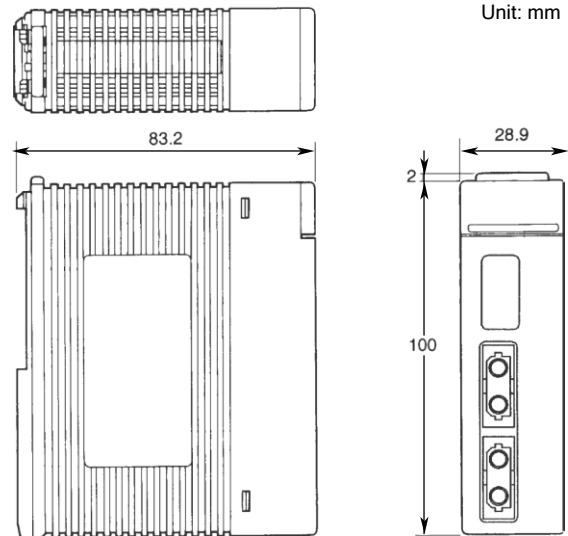
- The following table lists the type of base modules that can be used with this module.

Base Module	ID Mark
F3BU04	R 01 or later
F3BU05	—
F3BU06	R 01 or later
F3BU09	—
F3BU13	—
F3BU16	—

Model and Suffix Codes

Model	Suffix Code	Style Code	Option Code	Description
F3LR02	-0N	.....	.....	Maximum total distance: 1.4 km Maximum distance between stations: 500 m

External Dimensions



Optional Accessories

Prepare fiber-optic cables satisfying the requirements listed below when connecting Fiber-optic FA-bus Type 2 modules for extension. See Fiber-optic Cables (GS 34M06C92-01E) for details on fiber-optic cables.

■ Specifications for Fiber-optic Cable Cores

Yokogawa Cable Model Number	KM60	KM60, KM61, KM62, KM65, KM69	KM67
Fiber-optic Cable Model No. (Size)	DK-HPF200/230	2×CCV-HC-20/07	2×CCV-HG-20/08
Fiber-optic Cable type	SI type※1	SI type※1	GI type※2
Vendor	SWCC Showa Cable System	Sumitomo Electric Industries	
Core diameter	200±5μm		
Clad diameter	230 ⁺⁰ ₋₁₀ μm		
Transmission loss	7.0dB/km Max. (λ=0.85μm, Ta=25°C)	7dB/km Max. (λ=0.81μm, Ta=25°C)	8dB/km Max. (λ=0.81μm, Ta=25°C)

※1 : Step-index optical fiber
 ※2 : Graded-index optical fiber

■ Specifications for Fiber-optic Cable Connectors

Yokogawa Cable Model Number	KM60	KM65	KM60, KM61, KM62, KM67, KM69
Optical connectors Model No.	KF-07	CF-2011 CF-2071	CF-2001H CF-2071H
Vendor	SWCC Showa Cable Systems	Sumitomo Electric Industries	Sumitomo Electric Industries
Specifications	Bi-directional, lever lock bonding, polished	Bi-directional, lever lock, crimping, cut	Bi-directional, lever lock bonding, polished

General Specifications

F3LR02-1W FA-bus Type 2 Module

FA-M3

General

The F3LR02-1W is an interface module for constructing a system that requires distributed placement of multiple modules. The user can build up an efficient remote I/O system by installing F3LR02-1W modules in the FA-M3 main- and sub-units and connecting them via a FA-bus.

- With the 10-Mbps high-speed communication capability of the F3LR02-1W, the user does not have to worry about the I/O refresh time in ladder programming.
- All I/O module types and most special module types* can be installed in sub-units and accessed just like modules installed in the main unit.
- * : See "Restrictions on System Configuration"
- Both daisy-chain and loop configuration options are supported.
- The loop system is switched into two pairs of daisy-chain systems when a disconnection occurs in the system.

Specifications

Item	Specification
Transmission speed	10 Mbps
Transmission media	two-pair (4-wire) shielded cable (impedance 100Ω)
Transmission distance	Maximum total distance:70m Maximum distance between stations: 10 m
Transmission configuration	Star, daisy chain, loop
Maximum number of subunits (systems)	7 (Note)
RAS features	Shutdown I/O contact output on transmission channel error, reporting of transmission channel error location
Installation location	Must be installed inside panel enclosure or system
Current consumption	320 mA
External dimensions	28.9 (W) x 100 (H) x 83.2 (D) mm
Weight	105 g
Surrounding air temperature range	Operating : 0 to 55°C Storage : -20°C to 75°C
Surrounding humidity range	Operating : 10 to 90% RH (non-condensing) Storage : 10 to 90% RH (non-condensing)
Surrounding atmosphere	Must be free of corrosive gases, flammable gases or heavy dust.

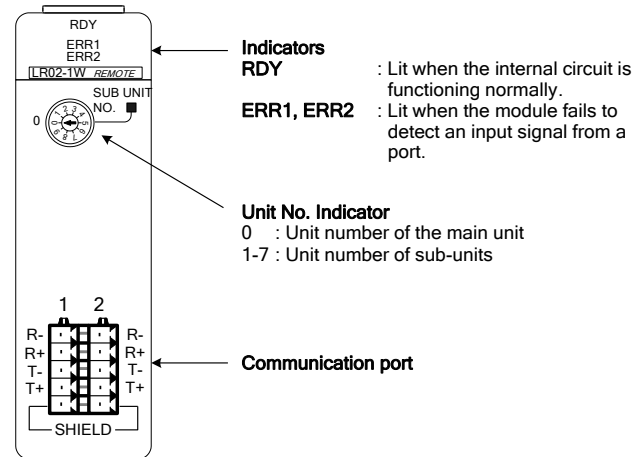
Note: The maximum number of systems when μ-bus master station modules are used is 1 system less than the value above for each μ-bus master station.

The combined maximum number of systems is 7 when FA bus-2 modules are used with Fiber-optic FA bus-2 modules and Fiber-optic FA bus modules.

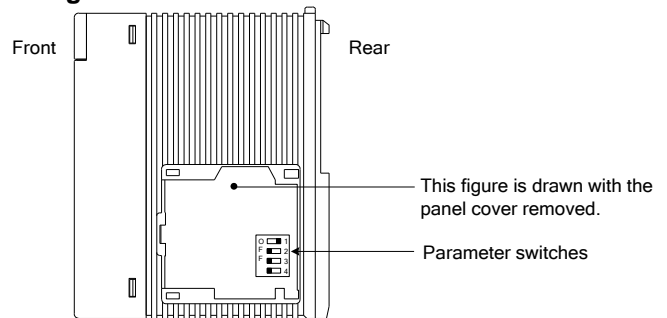


Components and Functions

■ Front View



■ Right Side View



Condition Switches

SW No.	Meaning	OFF	ON	Factory setting
1 ^{*1}	Hold/reset output on communication error	Hold output ^{*2}	Shutdown output	ON
2	Port used	Port 1	Both ports ^{*3}	OFF
3	Channel configuration	Daisy chain or star	Loop	OFF
4	Reserved	—	—	OFF

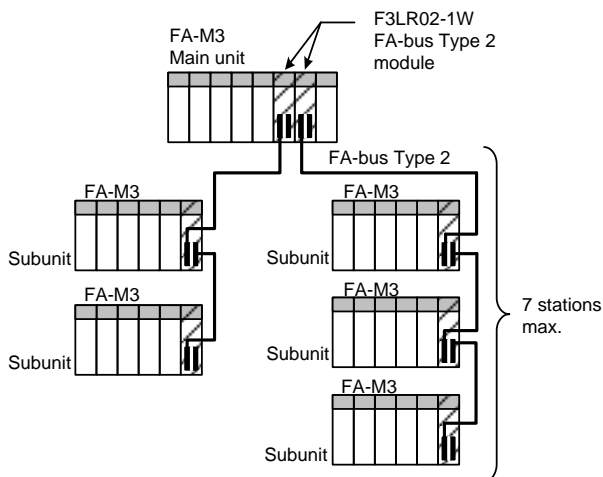
*1: Valid only for output modules installed in a sub-unit.

*2: Continues operation if transmission channel has been secured and system operation is continued.

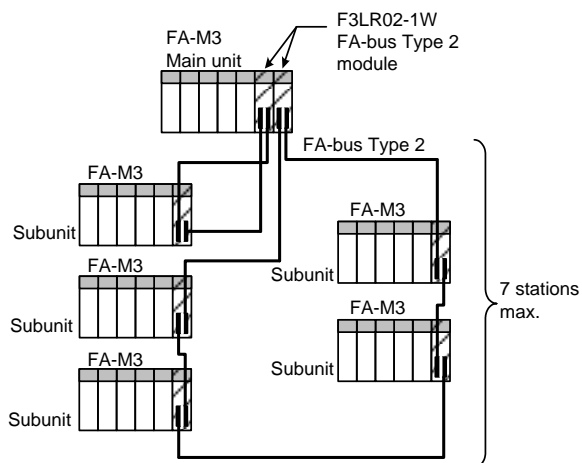
*3: Both port 1 and port 2 are used.

System Configuration Example

■ Daisy-chain configuration



■ Loop configuration



Restrictions on System Configuration

Item	Description
Number of FA-bus Type 2 modules installable in a main unit	7
Number of FA-bus Type 2 modules installable in a subunit	1
Modules installable in a subunit	All I/O modules, and special modules except F3LP□□, F3LE01, F3LX0□ and F3NX01 modules,

Cables

Use two-pair (4-wire) shielded cable (impedance 100Ω) when connecting FA-bus Type 2 modules.

Recommended cable: KM80-□□□ (tested for noise immunity, to be purchased separately)

* For details on KM80-□□□, see GS34M6H46-03E.

Operating Environment

The following table lists the type of CPU modules that can be used with this module.

CPU Module	Style No. and ROM Rev. ^{*1}
F3SP21, F3SP25 and F3SP35	S1 Rev. 8 or later ^{*2}
F3SP05, F3SP08, F3SP22, F3SP28, F3SP38, F3SP53, F3SP58/59, F3SP66/67, F3SP71/76	—
F3BP20, F3BP30 and F3FP36	—

*1: For the revision number of a CPU module, see the revision number label on the side panel.

*2: Supports logging of transmission channel error location.

The following table summarizes the requirements for the Ladder Diagram Support Program M3 that can be used with the module. All versions of the Ladder Programming Tool WideField3, WideField2 and WideField can be used with this module.

Ladder Diagram Support Program M3	Revision
SF510-E3□	Rev. 1.08 or later ^{*3}

*3: Supports logging of transmission channel error location.

All versions of the Ladder Programming Tool WideField2 can be used with this module.

Model and Suffix Codes

Model	Suffix Code	Style Code	Option Code	Description
F3LR02	-1W	.....	.....	Maximum total distance: 70 m Maximum distance between stations: 10 m

External Dimensions

