MITSUBISHI

2000 No.116E

NEW PRODUCT RELEASE

CC-LINK

GENERAL-PURPOSE
PROGRAMMABLE LOGIC CONTROLLER

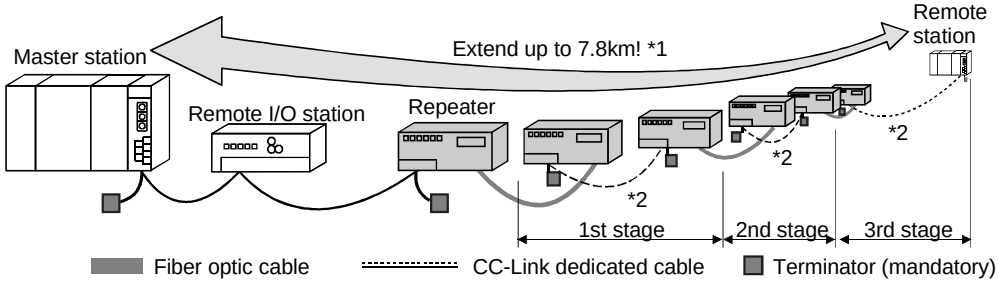
CC-Link System Fiber Optic Repeater Module AJ65SBT-RPS/AJ65SBT-RPG
CC-Link System Spatial Optical Repeater Module AJ65BT-RPI-10A/AJ65BT-RPI-10B

New!

Flexible CC-Link system wiring with the fiber optic repeater module and spatial optical repeater module!
With fiber optic cable, the fiber optic repeater module is immune to transmission path noise.
The spatial optical repeater module allows wiring in difficult areas and simplifies wiring with infrared spatial transmission.

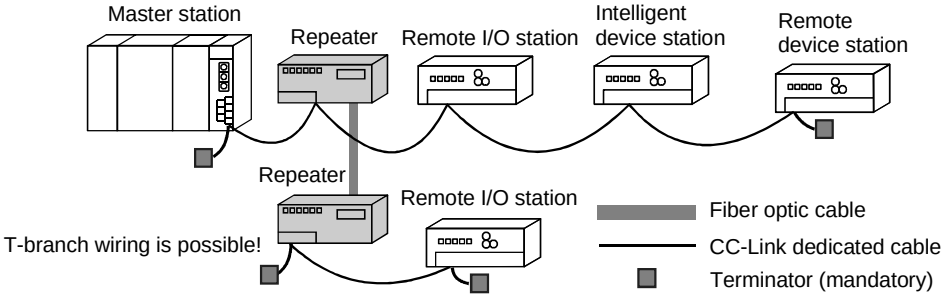
[Features of optical repeater module]

1) Extension of transmission distance in CC-Link system
The CC-Link system's transmission distance can be extended by using two AJ65SBT-RPS (for SI/QSI type optical fiber cable) or AJ65SBT-RPG (for GI type optical fiber cable) modules. By using several of these modules, the transmission distance can be extended to up to three stages (up to two stages when using AJ65SBT-RPG).



*1 This is the maximum transmission distance when the transmission speed is set to 156kbps for a system configured with only the AJ65SBT-RPS repeaters.
*2 Although not shown above, other remote stations can be connected between the repeaters.

2) T-branch wiring possible with CC-Link system
T-branch wiring is possible by installing this module between the CC-Link system modules.

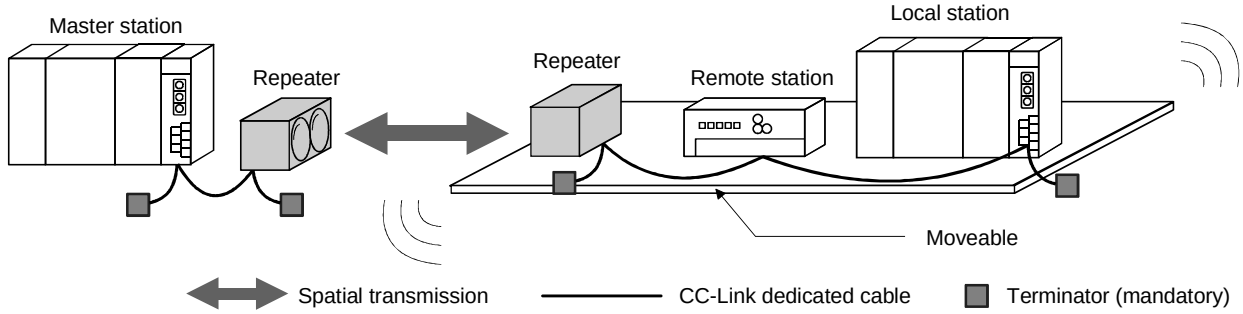


3) Stable noise resistant system
Fiber optic cables are used for branching and extension, so problems caused by sources of noise can be easily avoided and the system stability can be improved.

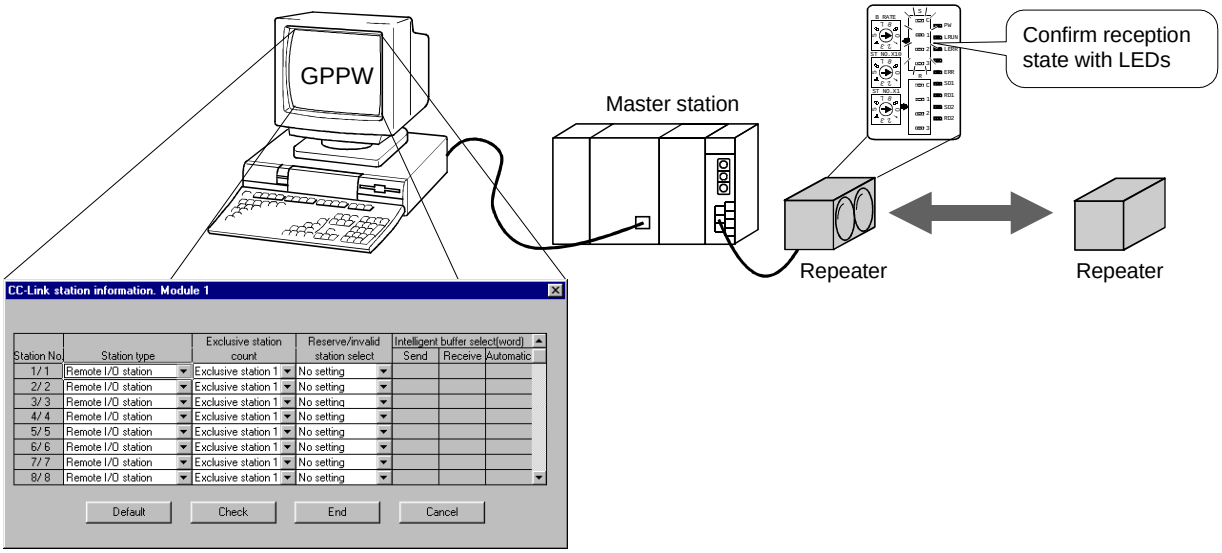
4) Install in control panel with either screws or DIN rail
This module can be installed in the control panel with either screws or DIN rails.
There are no limits to the module installation direction, so module installation with a high degree of freedom is realized.

[Features of spatial optical repeater module]

1) Realizing infrared spatial transmission
By combining the AJ65BT-RPI-10A and AJ65BT-RPI-10B, spatial infrared transmission over 0 to 100m can be realized in the CC-Link system (only at 2.5Mbps, 625kbps, 156kbps transmission speeds).
This allows the CC-Link system to be used even in places where cable wiring is difficult.

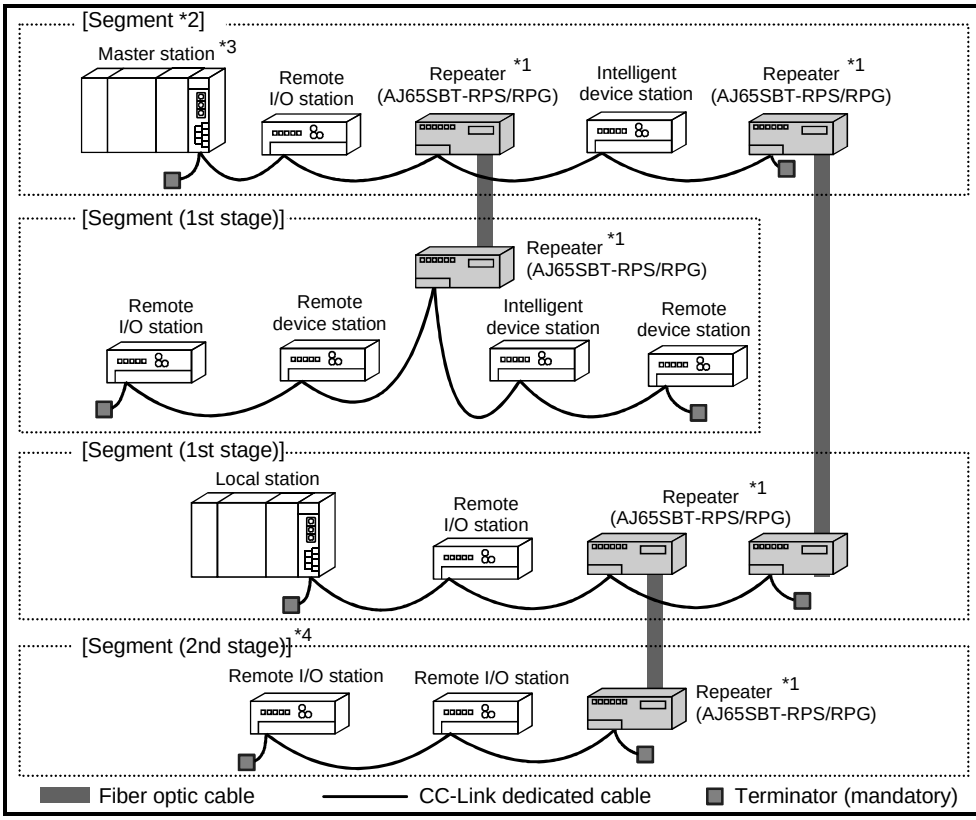


2) Monitoring of module communication state
By setting the station no. of this module, and by setting the parameters corresponding to the remote I/O station in the master station, the optical reception state of the module can be monitored (retrieved by the master station).
The reception state of the read remote module is displayed on the local module's LEDs by the master station's sequence program, so fine adjustment of the optical beam can be carried out easily.
* When using only as a repeater without monitoring the optical reception state, the station no. and parameters do not need to be set.



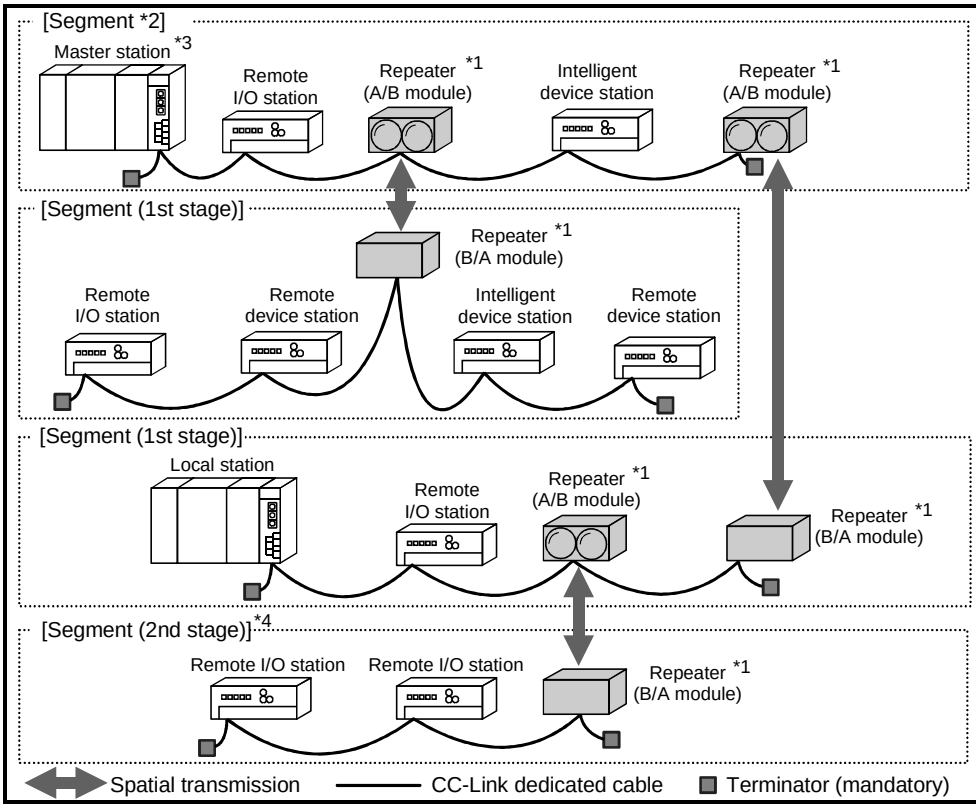
[System configuration]

AJ65SBT-RPS/AJ65SBT-RPG



*1 The repeater module is used to connect each segment and extend the CC-Link system.
*2 In a CC-Link system using the repeater, the devices between the terminators connected with crossover wires are called a segment. (The conventional CC-Link system can be called a one-segment configuration.)
*3 The transmission speed of each segment must be set to the master station's transmission speed.
*4 Up to three stages of segments can be used. (Up to two stages when using AJ65SBT-RPG.)

AJ65BT-RPI-10A/AJ65BT-RPI-10B



*1 The repeater module is used to connect each segment and extend the CC-Link system.
With this module, the AJ65BT-RPI-10A (A module) and AJ65BT-RPI-10B (B module) must be used as a pair.
*2 In a CC-Link system using the repeater, the devices between the terminators connected with crossover wires are called a segment. (The conventional CC-Link system can be called a one-segment configuration.)
*3 The transmission speed of each segment must be set to the master station's transmission speed.
*4 Up to two stages of segments can be used.

1) Conditions of usable master module
When using the AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 as the master module, the module with function version B and above must be used. Check the function version on the module's rating nameplate. Use a module indicated as "9707 B" or above.
The version is irrelevant when using the QJ61BT11.

2) Maximum number of connected modules for CC-Link system
Up to 64 remote I/O stations, remote device stations, local stations, standby master station, intelligent device stations and repeaters can be connected in one segment. Even in a CC-Link system that uses a repeater, the number of remote station modules that can be controlled by one master station will not change.
(When using the monitor function with the AJ65BT-RPI-10A/AJ65BT-RPI-10B, the modules must be counted as a remote I/O station instead of a repeater.)

3) Combination of fiber optic repeater modules and optical fiber cables used
Use the following combinations for the fiber optic repeater module and fiber optic cable.

Fiber optic repeater module	Fiber optical cable
AJ65SBT-RPS	SI type fiber optic cable (Maximum cable extension length: 500m 1640ft.)
	SI type fiber optic cable (Maximum cable extension length: 1000m 3280ft.)
AJ65SBT-RPG	SI type fiber optic cable (Maximum cable extension length: 2000m 6560ft.)

4) Combination of spatial optical repeater modules used
Always use the spatial optical repeater modules so that the AJ65BT-RPI-10A and AJ65BT-RPI-10B lens surfaces face each other. There are no limits to the connection order. (The master station side can be either AJ65BT-RPI-10A or 10B.)

5) Precautions for combining different repeater models
When using different repeater models in combination, the following limits will apply to the number of repeaters that can be connected and the number of connection stages.
Use the following combinations for the optical repeater module and fiber optic cable.

Combination pattern	Maximum number of repeater modules (modules (sets))				Maximum number of connection stages (stages)
	AJ65SBT-RPT	AJ65SBT-RPS	AJ65SBT-RPG	AJ65SBT-RPI-10A/10B	
Combination of two types	2	4(2)	-	-	4
	2	-	2(1)	-	3
	2	-	-	2(1)	3
	-	2(1)	2(1)	-	2
	-	2(1)	-	2(1)	2
	-	-	2(1)	2(1)	2
Combination of three or more types	Use not possible				

[Performance and specifications]

AJ65SBT-RPS/AJ65SBT-RPG

Item			Specifications		
			AJ65SBT-RPS		AJ65SBT-RPG
Common specifications	Power supply	Voltage (V)	DC20.4 to DC26.4		
		Current (mA)	60.0 (at TYP. 24VDC)		
	Noise withstand level		Simulator noise 1500Vp-p Using noise width 1μs, noise frequency 25 to 60Hz noise simulator Fast transient/burst noise IEC801-4: 1kV		
	Withstand voltage		One minute at 500VAC between DC external terminal batch and grounding		
	Insulation resistance		10MΩ or more with 500VDC insulation resistance meter between DC external terminal batch and grounding		
	Weight (kg(lb))		0.2 (0.44)		
	Accessories		Terminator (110Ω ×1, 130Ω ×1)		
CC-Link communication specifications	Transmission speed (bps)		Select from 156k, 625k, 2.5M, 5M or 10M		
	Maximum number of segment connection stages (stages)		3		2
	Maximum transmission distance of each segment		Follows transmission speed. (Same as conventional CC-Link system (system with only one segment)		
	Maximum number of connected modules (modules)		64		
	Number of occupied stations (stations)		0 (none)		
	Station No. setting		No station No.		
Optical communication specifications	Connection cable		SI-200/220	QSI-185/230	GI-50/125
	Applicable connector		CA7003		CA9103S
	Maximum transmission distance of optical fiber cable between repeaters (m (ft.))		500 (1640)	1000 (3280)	2000 (6560)

AJ65BT-RPI-10A/AJ65BT-RPI-10B

Item			Specifications
Common specifications	Power supply	Voltage (V)	DC20.4 to DC26.4
		Current (mA)	137.0 (at TYP. 24VDC)
	Noise withstand level		Simulator noise 1500Vp-p Using noise width 1μs, noise frequency 25 to 60Hz noise simulator Fast transient/burst noise IEC801-4: 1kV
	Withstand voltage		One minute at 500VAC between DC external terminal batch and grounding
	Insulation resistance		10MΩ or more with 500VDC insulation resistance meter between DC external terminal batch and grounding
	Weight (kg(lb))		0.5 (1.11)
CC-Link communication specifications	Transmission speed (bps)		Select from 156k, 625k or 2.5M
	Maximum number of segment connection stages (stages)		2
	Maximum transmission distance of each segment		Follows transmission speed. (Same as conventional CC-Link system (system with only one segment)
	Maximum number of connected modules (modules)		64
	Number of occupied stations (stations)		When using monitor function: 1, When not using monitor function: 0
Optical communication specifications	Optical transmission distance (m (ft.))		0 to 100 (0 to 328)
	Directional angle (°)		When optical transmission distance is 0 to 50m(164ft.): Total angle ±2 When optical transmission distance is 50 to 100m(328ft.): Total angle ±1
	Modulation frequency (MHz)		A module → B module : 36±3 B module → A module : 44±2.5
	Modulation method		FSK

1) Connection cable specifications

a) CC-Link dedicated cable

Use the CC-Link dedicated cable with the CC-Link system.

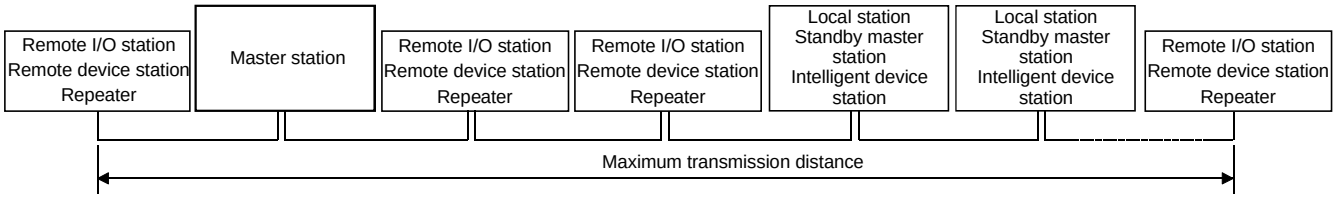
The performance of the CC-Link system cannot be guaranteed if cables other than the CC-Link dedicated cables are used.

Refer to the CC-Link catalog L(NA)74108143E for details on the CC-Link dedicated cable specifications and contact information.

b) Fiber optic cable

Refer to the fiber optic repeater module user's manual for details on the specifications of the fiber optic cable used with the CC-Link system using the AJ65SBT-RPS/AJ65SBT-RPG.

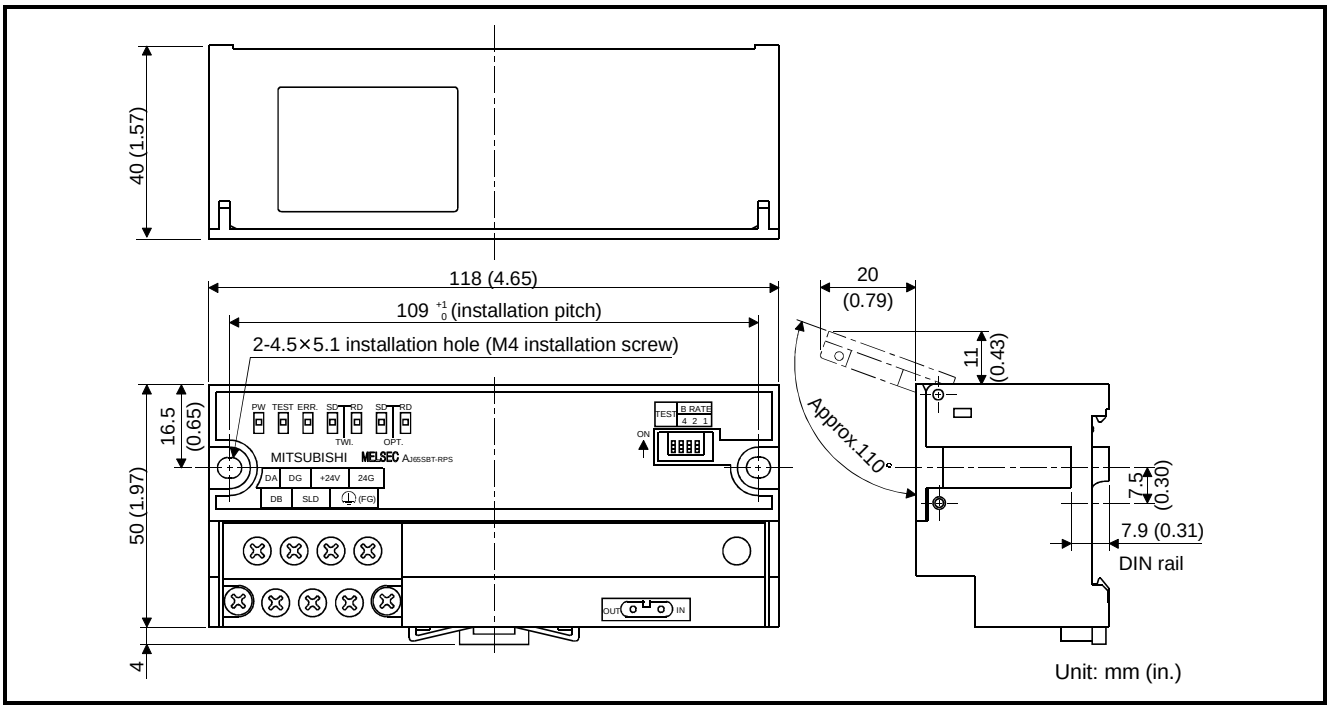
2) Maximum transmission distance



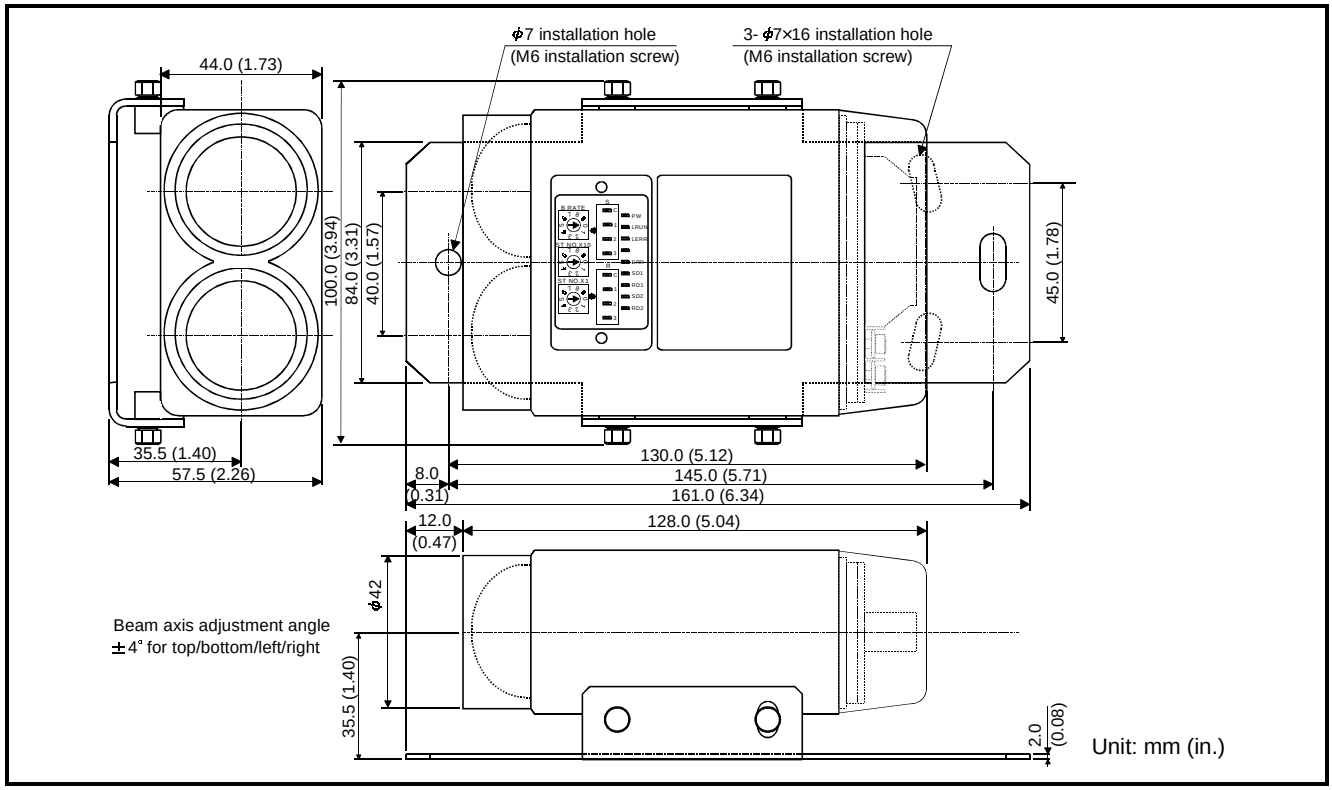
Conditions	Details
Transmission speed	The maximum transmission distance in each segment is the same as the conventional CC-Link system (system with only one segment). The maximum transmission distance in each segment differs according to the transmission speed. Refer to the user's manual of the master module being used for details. (The handling of the cable between the repeater stations is the same as for remote I/O station.)
Number of connected segments	By adding one connection stage, the maximum transmission distance for one segment will be added.

[Outline dimensions]

AJ65SBT-RPS/AJ65SBT-RPG



AJ65BT-RPI-10A/AJ65BT-RPI-10B



[List of products]

Product name		Type
Optical repeater module	CC-Link system fiber optic repeater module AJ65SBT-RPS	AJ65SBT-RPS
	CC-Link system fiber optic repeater module AJ65SBT-RPG	AJ65SBT-RPG
	Protective cover A6CVR-16 (optional part)	A6CVR-16
	Fiber optic cable for CC-Link system fiber optic repeater module self-return test	AN-CCLT
Spatial optical repeater module	CC-Link system spatial optical repeater module AJ65BT-RPI-10A	AJ65BT-RPI-10A
	CC-Link system spatial optical repeater module AJ65BT-RPI-10B	AJ65BT-RPI-10B

[Manuals]

Manual name	Manual shipment state	IB/SH No.	Type code
CC-Link System Repeater Optical Repeater Module AJ65SBT-RPS/AJ65SBT-RPG User's Manual	Enclosed with product	IB-0800089	13JQ85
CC-Link System Repeater Optical Repeater Module AJ65BT-RPI-10A/AJ65SBT-RPI-10B User's Manual	Enclosed with product	IB-0800090	13JQ86

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Germany	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY	Tel : 49-2102-486-0 FAX: 49-2102-486-717
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