

CC-Link Special Function I/O: High-Speed Counter Modules

AJ65BT-D62/D62D/D62D-S1

- 24 bit counter
- Four counter functions:
 - Latch-counter function
 - Sampling counter function
 - Periodic pulse-counter function
 - Count-disable function

AJ65BT-D62

- DC input/sink output type
- Preset DC input

AJ65BT-D62D

- Differential input/sink output type
- Preset DC input

AJ65BT-D62D-S1

- Differential input/sink output type
- Preset differential input

Model Number	AJ65BT-D62		AJ65BT-D62D		AJ65BT-D62D-S1			
Stocked Item	S		-		-			
Certification	UL • cUL • CE							
Counting Speed Selector Switch Setting	HIGH (*2)	LOW (*1)	HIGH (*2)	LOW (*1)	HIGH (*2)	LOW (*1)		
Number of Channels	2 channels							
Counting Input Signal	Phase	1 phase input, 2 phase input						
	Signal Level (αA, αB)	5/12/24VDC, 2 to 5mA		EIA standard, RS-422-A differential type line driver level [Equivalent to Am26L31 (Japan Texas Instruments, Inc.)]				
Counter	Counting Speed (Maximum)	1 Phase Input	200kpps	10kpps	400kpps	10kpps	400kpps	10kpps
		2 Phase Input	200kpps	7kpps	300kpps	7kpps	300kpps	7kpps
	Counting Range	24-bit binary 0 to 16777215						
	Model	Preset up/down counter and ring counter functions						
Minimum Count Pulse Width								
	<p>(1 and 2 phase input) (1 phase input) (2 phase input) (1 phase input) (2 phase input) (1 phase input) (2 phase input) (1 phase input) (2 phase input) (1 phase input) (2 phase input)</p>							
Coincidence Output	Comparison Range	24-bit binary						
	Comparison Result	Setting value < count value, setting value = count value, setting value > count value						
External Input	Preset	5/12/24VDC, 2 to 5mA			EIA standard, RS-422-A differential type line driver level [Equivalent to Am26L31 (Japan Texas Instruments, Inc.)]			
	Function Start	5/12/24VDC, 2 to 5mA			5/12/24VDC, 2 or 5mA			
	Response Time	OFF-ON: 0.5ms max, ON-OFF: 3ms max.						
External Output	Coincidence Output	2A/1 common						
	Response Time	0.1ms max.						
Station Type	Remote device station							
Number of Occupied Stations	4 stations							
Power Supply Voltage	18 to 28.8VDC							
Current Consumption (at 24VDC)	70mA		100mA		120mA			
Connection Terminal Block	27-point terminal block (M3.5 x 7 screws)							
Application Wire Size	0.75 to 2.00mm ²							
Application Solderless Terminal	RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)							
Weight (kg)	0.41		0.42					
Dimensions (W x H x D) mm	151.9 x 65 x 63							

Notes:

1. The rise and fall time of the input signal should be 2µs or less and have a duty cycle of 50%.
2. The rise and fall time of the input signal should be 0.1µs or less and have a duty cycle of 50%.

CC-Link Special Function I/O: Positioning Module

- Decentralized motion control - can be placed anywhere on a CC-Link network
- Supports absolute positioning with Mitsubishi Electric's intelligent digital servo line

Model Number	AJ65BT-D75P2-S3	
Stocked Item	S	
Certification	UL • cUL • CE	
Number of Control Axes	2 axes	
Interpolation Function	2 axis linear interpolation, 2 axis circular interpolation (*1)	
Control Method	PTP (Point to Point) control, locus control (both linear and circular interpolation can be set), speed control, speed/position switch control	
Control Unit	mm, inch, degrees, pulse	
Positioning Data	It is possible to set 600 data points (positioning data No.: 1 to 600) per axis	
Teaching Module	AD75TU (software version D or later)	
Backup	Parameters and positioning data are stored in the flash memory (battery-less)	
Positioning	Positioning Method	PTP control: Incremental/absolute system; Speed/position switch control: Incremental/absolute system (*2); Locus control: Incremental/absolute system
	Positioning Range	Absolute system: -214748364.8 to 214748364.7 (m) / -13421772.8 to 13421772.7 (m) (*3); -21474.83648 to 21474.83647 (inch) / -1342.17728 to 1342.17727 (inch); 0 to 359.99999 (degree) / 0 to 359.99999 (degree); 2147483648 to 2147483647 (pulse) / -134217728 to 134217727 (pulse) Incrementation system: -214748364.8 to 214748364.7 (m) / -13421772.8 to 13421772.7 (m); -21474.83648 to 21474.83647 (inch) / -1342.17728 to 1342.17727 (inch); -21474.83648 to 21474.83647 (degree) / -1342.17728 to 1342.17727 (degree); 2147483648 to 2147483647 (pulse) / -134217728 to 134217727 (pulse) Speed/position switch control (increment system): 0 to 214748364.7 (m) / 0 to 13421772.7 (m); 0 to 21474.83647 (inch) / 0 to 1342.17727 (inch); 0 to 21474.83647 (degree) / 0 to 1342.17727 (degree); 0 to 2147483647 (pulse) / 0 to 134217727 (pulse) Speed/position switch control (absolute system): 0 to 359.99999 (degree) / 0 to 359.99999 (degree)
	Speed Command	0.01 to 6000000.00 (mm/min) / 0.01 to 375000.00 (mm/min); 0.001 to 600000.000 (inch/min) / 0.001 to 37500.000 (inch/min); 0.001 to 600000.000 (degree/min) / 0.001 to 37500.000 (degree/min); 1 to 1000000 (pulse/s) / 1 to 62500 (pulse/s)
	Acceleration / Deceleration Processing	Automatic trapezoid acceleration / deceleration and S-curve acceleration / deceleration (*4)
	Acceleration / Deceleration Time	It is possible to switch between 1 to 65535 (ms) and 1 to 8388608 (ms); It is possible to set 4 patterns for both acceleration and deceleration times.
	Rapid Stop Deceleration Time	It is possible to switch between 1 to 65535 (ms) and 1 to 8388908 (ms) (same ranges as for the acceleration / deceleration time)
	Starting Time	20 ms or less (excluding link scan time)
Connector	10136-3000VE (soldering-type, accessory); 10136-6000EL (pressure connection type, sold separately)	
Applicable Wire Size	10138-3000VE: AWG#24 to #30 (approximately 0.05 to 0.2 SQ); 10138-6000VE: AWG#28 (approximately 0.08 SQ)	
Maximum Output Pulse	When connected to differential driver: 400kbps; When connected to open collector: 200kbps	
Maximum Connection Distance Between Servos	When connected to differential driver: 10m; When connected to open collector: 2m	
Station Type	Intelligent device station	
Number of Occupied Stations	4 stations (128 points each for RX/Ry, 16 points each for RWr/RWw)	
External Power Supply	24VDC (20.4 to 26.4V)	
Applicable Wire Size	0.75 to 2.00mm ²	
Applicable Solderless Terminal	RAV1.25 to 3.5, RAV2 to 3.5	
24VDC Internal Current Consumption	0.30A	
Weight (kg)	0.50	
Dimensions (W x H x D) mm	170 x 63.5 x 80	

Notes:

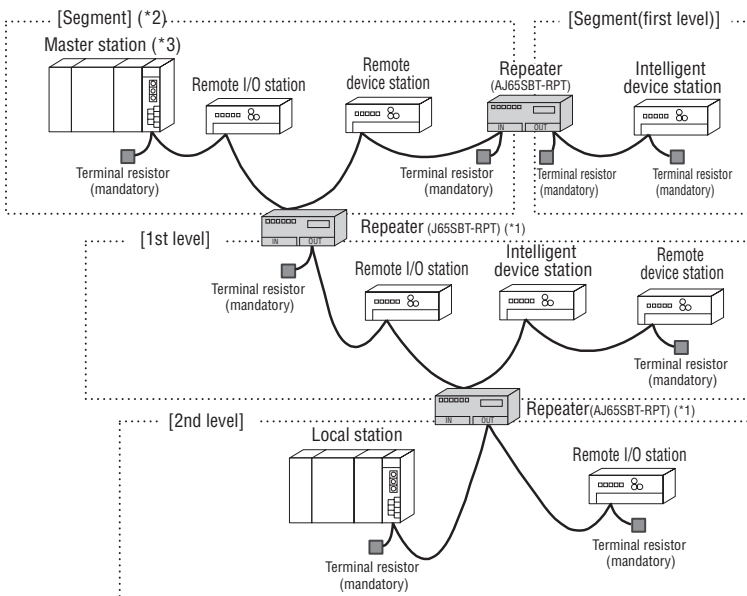
1. The circular interpolation function is not available when a stepping motor is used.
2. In the absolute method, the control unit of the speed/position switch control is "degree" only.
3. Indicates the setting range of "standard mode/stepping motor mode."
4. The automatic S-curve acceleration/deceleration is not available when a stepping motor is used.

CC-Link Special Function I/O: Repeater Mode

- Allows distance of a CC-Link network to be extended up to 13.2 km with regular BA1SJ61-S or BA1SJ61-P cable
- Allows T-branch configurations

Model Number	AJ65SBT-RPT
Stocked Item	S
Certification	UL • cUL • CE
Maximum Number of Connected Modules (Levels) per Segment	10
Maximum Transmission Distance of Each Segment	Varies depending on the transmission speed. Same as the normal CC-Link system (a system consisting of one segment).
Number of Occupied Stations	None
Station Numbers that Can be Set	No station number
Power Supply Voltage	20.4 to 26.4VDC
Current Consumption	0.06A (at TYP 24VDC)
Weight (kg)	0.2
Dimensions (W x H x D) mm	87.3 x 54 x 40

System Configuration



Notes:

1. The repeater is a module used to connect each segment and extend the CC-Link system.
2. In a CC-Link system using repeaters, a block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment. (A conventional CC-Link system can be said to be a single-segment configuration.)
3. It is necessary to match the transmission speed of each segment to the transmission speed of the master station.

CC-Link Special Function I/O

- Star topology wiring (T-branch) with 8 branch lines available in CC-Link system
- Extended transmission distance in CC-Link system

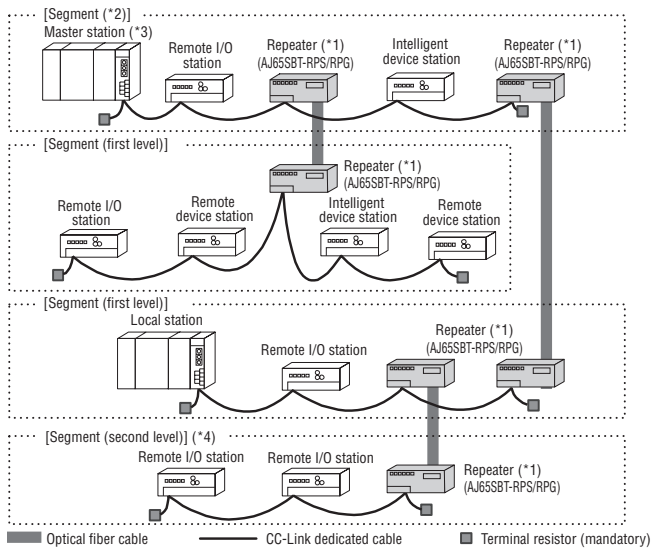
Model Number	AJ65BTS-RPH
Stocked Item	-
Certification	UL • cUL • CE
Number of Occupied Stations	0
Transmission Speed	Can select from 156 kbps / 625 kbps / 2.5 Mbps / 5 Mbps / 10 Mbps
Max. Number of Modules Connected to the Trunk Line	64
Connection Position	Trunk line side: No restriction (compliant with the CC-Link specifications) Branch line side: Connect to the end of the branch line (segment end)
Max. Number of Stages Connected to Configure Segment	AJ65BTS-RPH only: 2nd stage Combination of AJ65BTS-RPH and AJ65SBT-RPT: 3rd stage Combination of AJ65BTS-RPH and AJ65FRTA-RPH, AJ65SBT-RPS/RPG or AJ65BT-RPI: 2nd stage
Terminating Resistor	Trunk line side: 110 Ω, or 130 Ω; Branch line side: 110 Ω
Connected Terminal Block	Spring clamp terminal block
Applicable Wire Sizes	AWG24 to 12, single wire 0.5 to 1.78 mm ² ; stranded wire 0.2 to 2.5 mm ²
Module Fixing Screw	M4 mounting screw
Applicable DIN Rail	TH35-7.5Fe, TH35-7.5Al (conforming to IEC 60715)
Power Supply	Voltage 24 VDC external power supply (20.4 to 26.4 V, ripple within ±5%) Current 0.36 A (TYP. 24 V DC)
Current Consumption	0.06A (at TYP 24VDC)
Weight (kg)	0.37
Dimensions (W x H x D) mm	197.5 x 65 x 45.5

CC-Link Special Function I/O: Optical Repeater Modules

- Allows distance of a CC-Link network to be extended up to 7.8 km using optical fiber cable
- Use a maximum of 6 repeaters per segment

Model Number		AJ65SBT-RPS	AJ65SBT-RPG
Stocked Item		-	-
Certification		UL • cUL • CE	
Common Specification	Power Supply	Voltage	20.4 to 26.4VDC
		Current	0.06A (at TYP 24VDC)
	Dimensions (W x H x D) mm		118 x 54 x 40
	Weight (kg)		0.2
CC-Link Communication Specification	Maximum Number of Connected Levels in a System	3 levels	2 levels
	Number of Occupied Stations	None	
Optical Communication Specification	Connection Cable	SI-200/220	QSI-185/230
	Applicable Connector	CA7003	
	Maximum Transmission Distance of Optical Fiber Cable Between Repeater	500m	1000m
			GI-50/125
			CA9103S
			2000m

System Configuration



Combinations of optical repeater module and optical fiber cable to be used. The optical repeater modules can be used in the following combinations with optical fiber cable.

Optical Repeater Module	Optical Fiber Cable
AJ65SBT-RPS	SI-type optical fiber cable (maximum extension distance of cable: 500m)
	QSI-type optical fiber cable (maximum extension distance of cable: 1000m)
AJ65SBT-RPG	GI-type optical fiber cable (maximum extension distance of cable: 2000m)

1. The repeater is a module used to connect each segment and extend the CC-Link system.
2. In a CC-Link system using repeaters, a block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment. (A conventional CC-Link system can be said to be a single-segment configuration.)
3. It is necessary to match the transmission speed of each segment to the transmission speed of the master station.
4. Up to 3 levels can be used in one segment (up to 2 levels when AJ65SBT-RPG modules are used).

CC-Link Special Function I/O: Wireless Optical Repeater Module

- Wireless optical link is ideal for rotating machinery, to replace festoon cabling, etc.
- Use “A” and “B” modules as a pair

Model Number		AJ65BT-RPI-10A / AJ65BT-RPI-10B	
Stocked Item		-	
Certification		CE	
Common Specification	Power Supply	Voltage	20.4 to 26.4VDC
		Current	0.137A (at TYP 24VDC)
	Dimensions (W x H x D) mm		161 x 100 x 57.5
	Weight (kg)		0.5
CC-Link Communication Specification	Transmission Speed		2.5M / 625k / 156kbps
	Maximum Number of Connected Levels in a Segment		2 levels
	Number of Occupied Stations		When the monitoring function is used: 1 (remote I/O station), when the monitoring function is not used: 0 (no station is occupied)
Optical Communication Specification	Optical Transmission Distance		0 to 100m
	Angle of Beam Spread (°)		When the optical transmission distance is 0 to 50m: Total angle ±2 When the optical transmission distance is 50 to 100m: Total angle ±1
	Modulation Frequency		Module A to module B: 36 ± 3MHz; Module B to module A: 44 ± 2.5MHz
	Modulation Method		FSK
Specially Noted General Specification	Ambient Illumination		Must be 10000 lx or less (avoid direct sunlight)

CC-Link Special Function I/O: RS-232 Interface Module

Provides a single RS-232 port directly on the CC-Link network.

Model Number		AJ65BT-R2N	
Stocked Item		S	
Certification		UL • cUL • CE	
RS-232	Interface	RS-232 compliant (D-Sub 9P)	
	Communication Method	Full-duplex communication method	
	Synchronization Method	Asynchronous method	
	Transmission Speed	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 (*1), 115200 (*1) bps	
	Transmission Distance	Up to 15m	
Protocol		Nonprocedural protocol MELSOFT connection (equivalent to AJ65BT-G4-S3 Q mode)	
CC-Link	Transmission Path	Bus (RS-485)	
	CC-Link Station Type	Intelligent device station	
	CC-Link Version	Ver.1	
	Connection Cable	CC-Link dedicated cable/CC-Link high-performance cable/CC-Link Ver. 1.10-compatible cable	
Number of Occupied Stations		1 station (RX/Ry: 32 points each, RWw/RWr: 4 points each)	
Insulation Resistance		Between all external DC terminals and ground: 10MΩ or more by 500VDC insulation resistance tester	
Noise Immunity		By noise simulator of 500 Vp-p noise voltage, 1μs pulse width, and 25 to 60 Hz noise frequency	
Module Mounting Screw		M4 x 0.7 mm x 16 mm or larger, also mountable with DIN rail	
Applicable DIN Rail		TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (conforms to IEC 60715)	
External Power Supply		24VDC (20.4 to 26.4VDC, ripple ratio: within 5%) Current consumption: 0.11 A (TYP. 24VDC)	
General-Purpose I/O	Number of Input Points		2 points
	Rated Input Voltage		24VDC
	Rated Input Current		Approx. 7 mA
	Operating Voltage Range		19.2 to 28.8VDC (ripple ratio: within 5%)
	Input Resistance		Approx. 3.3 kΩ
	Response Time	OFF – ON	10 ms or less
		ON – OFF	10 ms or less
	Wiring Method For Common		2 points/common, positive/negative common (sink/source)
	Number of Output Points		2 points
	Isolation Method		Photocoupler
	Rated Load Voltage		12 to 24VDC (+20/-15%)
	Operating Load Voltage Range		10.2 to 28.8VDC (ripple ratio: within 5%)
	Max. Load Current		0.1A/point, 0.2A/common
	Output Type		Sink
	Response Time	OFF – ON	1 ms or less
		ON – OFF	1 ms or less (resistance load)
	External Power Supply For Output	Voltage	10.2 to 28.8VDC (ripple ratio: within 5%)
		Current	10 mA (at 24VDC), (MAX all points ON)
	Wiring Method For Common		2 points/common
	Protection Function		Yes
External Connections		7-point terminal block (M3.5 screw)	
Applicable Wire Size		0.75 to 2 mm ²	
Applicable Crimping Terminal		RAV1.25-3.5, RAV2-3.5 (conforms to JIS C 2805)	
Dimensions (W x H x D) mm		170 x 80 x 47	
Weight (kg)		0.40	

Note 1: Unless data are sent concurrently from the AJ65BT-R2N and external-device sides in Nonprocedural protocol mode, communication at 57600 bps or 115200 bps is available. In the event of concurrent transmission, an RS-232 receive overrun error (BB23H) may occur.

CC-Link Special Function I/O: CC-Link - CC-Link / LT Bridge Module

- Provides a way to link a CC-Link/LT network to a CC-Link network
- Certifications: UL • cUL • CE

Model Number		AJ65SBT-CLB		
CC-Link				
Stocked Item		-		
Station Type		Remote device station		
Number of Occupied Stations		Selected between 2, 4 and 8 stations*		
		When 2 stations are selected: 64 points for each of RX/RX (16 points used by the system), 8 words for each of RWr/RWw		
		When 4 stations are selected: 128 points for each of RX/RX (16 points used by the system), 16 words for each of RWr/RWw		
		When 8 stations are selected: 256 points for each of RX/RX When 8 stations are selected: 256 points for each of RX/RX		
CC-Link/LT				
Number of CC-Link Occupied Stations		2 stations occupied	4 stations occupied	8 stations occupied
Maximum Number of CC-Link/LT Connected Stations	4-Points Mode	12 stations	28 stations	56 stations
	8-Points Mode	6 stations	14 stations	28 stations
	16-Points Mode	3 stations	7 stations	14 stations
Remote Station Numbers		1 to 56		
Bridge Station Connection Position		Connected at the end of the trunk line		
Dimensions (W x H x D) mm		87 x 49 x 40		