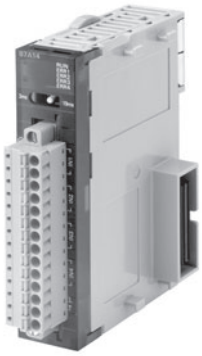
CJ-series B7A Interface Unit

CJ1W-B7A

CSM_CJ1W-B7A_DS_E_2_1

It transmits 16 points of I/O signals per word with a pair of cables. Easy and minimized wiring effort,

- The B7A Interface Unit and B7A Link Terminal can be used in the same way as a standard Basic I/O Unit and I/O Terminal without any need to worry about communications. This characteristic reduces the wiring when using more than one relatively remote sensor or actuator.

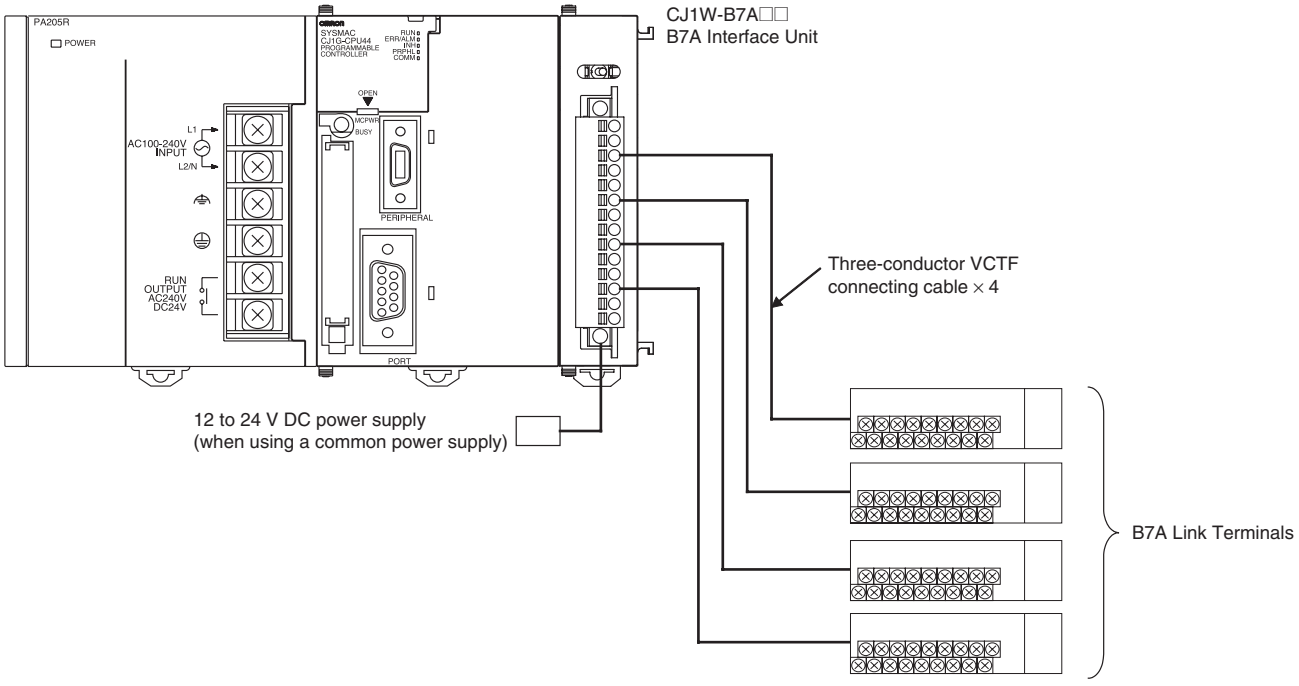


CJ1W-B7A14

Features

- A CJ1W-B7A unit can transmit 64 points of I/O signals.
- The slim body can downsize machines to which CJ1W-B7A is connected.
- It is a basic I/O unit. No complicated setting and programs are required.

System Configuration



B7A Communications Specifications

Item	Specifications		
Transmission method	One-way time-sharing multiplex transmissions		
Transmission delay (communications delay on transmission path)	High-speed	3 ms typical, 5 ms max.	
	Standard	19.2 ms typical, 31 ms max.	
Transmission points	CJ1W-B7A14	64 inputs (4 ports)	
	CJ1W-B7A04	64 outputs (4 ports)	
	CJ1W-B7A22	32 inputs (2 ports), 32 outputs (2 ports)	
External power supply voltage *1	12 to 24 V DC (allowable voltage range: 10.8 to 26.4 V)		
External supply current *2	CJ1W-B7A14	40 mA min.	
	CJ1W-B7A04	150 mA min.	
	CJ1W-B7A22	80 mA min.	
Minimum input time *3	High-speed	16 ms	
	Standard	2.4 ms	
Transmission distance	High-speed	Power supply on one side (common power supply)	10 m max.
			50 m max. (with shielded cable)
		Power supply on both sides (separate power supplies)	10 m max.
			100 m max. (with shielded cable)
	Standard	Power supply on one side (common power supply)	100 m max.
		Power supply on both sides (separate power supplies)	500 m max.
Cables	VCTF, 0.75 mm^2, 3 conductors (power supply on one side (common power supply)) VCTF, 0.75 mm^2, 2 conductors (power supply on both sides (separate power supplies)) Shielded cable, 0.75 mm^2, 3 conductors (power supply on one side (common power supply)) Shielded cable, 0.75 mm^2, 2 conductors (power supply on both sides (separate power supplies))		

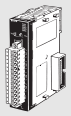
Note: 1. When separate power supplies are used, the B7A Interface Unit and B7A Link Terminal are supplied by separate external power supplies.
2. When a common power supply is used, the B7A Interface Unit and B7A Link Terminal are supplied by the same external power supply.

*1. We recommend OMRON S8□□-series Power Supply Units for the external power supplies.
*2. The capacity of the external supply current does not include the capacity required by the B7A Link Terminal.
*3. The minimum input time is the minimum time required by the B7A Interface Unit to read the input signals from the CPU Unit.

Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Unit type	Name	Specifications		No. of words allocated	Current consumption (A)		Model	Standards
		I/O points	External connection		5 V	24 V		
CJ1 Basic I/O Units	**B7A Interface Units** 	64 inputs	Removable terminal block	4 words	0.07	–	**CJ1W-B7A14**	UC1, CE
		64 outputs			0.07	–	**CJ1W-B7A04**	
		32 inputs/outputs			0.07	–	**CJ1W-B7A22**	

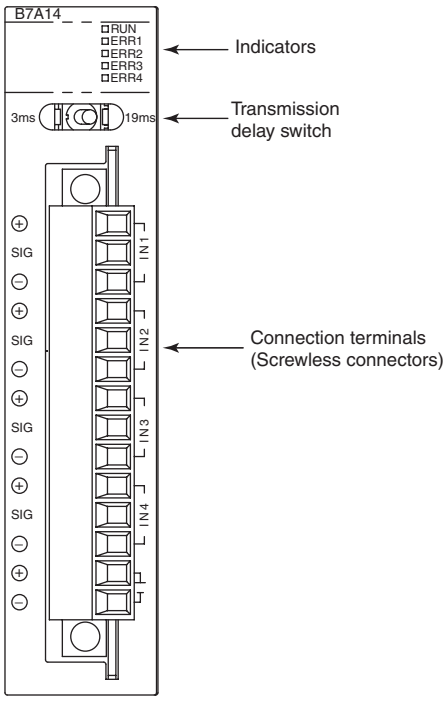
Mountable Racks

Model	NJ system		CJ system (CJ1, CJ2)		CP1H system	NSJ system	
	CPU Rack	Expansion Rack	CPU Rack	Expansion Backplane	CP1H PLC	NSJ Controller	Expansion Backplane
CJ1W-B7A14 CJ1W-B7A04 CJ1W-B7A22	10 Units	10 Units (per Expansion Rack)	10 Units	10 Units (per Expansion Backplane)	Not Supported	Not Supported	10 Units (per Expansion Backplane)

Specifications

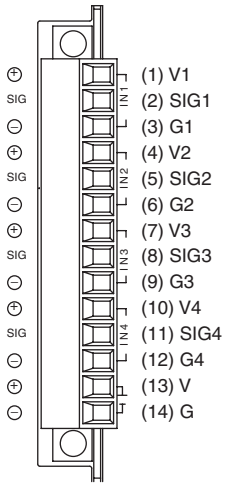
Items / Mode	Standard mode	High-speed mode
I/O points	IN 32 / OUT 32 (CJ1W-B7A22) IN 64 (CJ1W-B7A14) OUT 64 (CJ1W-B7A04)	
Transmission method	One-way time-sharing multiplex transmissions	
Transmission distance	500m max.	100m max.
Transmission delay	19.2ms (typical)	3ms (typical)
Minimum input time	16ms	2.4ms
Power Supply voltage (allowable voltage range)	12 to 24VDC (10.8 to 26.4VDC)	
I/O memory Allocations	Each Unit is allocated 4 words in the I/O Area (which starts at CIO 0000). The words are allocated according to the mounting position of the Unit.	
Transmission error bit	A transmission error bit for each input port is allocated in the Basic I/O Unit Information Area.	
Cable	VCTF, 0.75mm^2 recommended.	

Parts and Names



Terminal Arrangement

Terminal	Name	Function	Word	Appearance
(1)	Port 1 power supply: V1	Connect to the + terminal of the B7A Link Terminal to be connected to port 1 (only when using a common power supply).	n	Connector with clamps
(2)	Port 1 signal: SIG1	Connect to the SIG terminal of the B7A Link Terminal to be connected to port 1.		
(3)	Port 1 ground: G1	Connect to the – terminal of the B7A Link Terminal to be connected to port 1.		
(4)	Port 2 power supply: V2	Connect to the + terminal of the B7A Link Terminal to be connected to port 2 (only when using a common power supply).	n+1	
(5)	Port 2 signal: SIG2	Connect to the SIG terminal of the B7A Link Terminal to be connected to port 2.		
(6)	Port 2 ground: G2	Connect to the – terminal of the B7A Link Terminal to be connected to port 2.		
(7)	Port 3 power supply: V3	Connect to the + terminal of the B7A Link Terminal to be connected to port 3 (only when using a common power supply).	n+2	
(8)	Port 3 signal: SIG3	Connect to the SIG terminal of the B7A Link Terminal to be connected to port 3.		
(9)	Port 3 ground: G3	Connect to the – terminal of the B7A Link Terminal to be connected to port 3.		
(10)	Port 4 power supply: V4	Connect to the + terminal of the B7A Link Terminal to be connected to port 4 (only when using a common power supply).	n+3	
(11)	Port 4 signal: SIG4	Connect to the SIG terminal of the B7A Link Terminal to be connected to port 4.		
(12)	Port 4 ground: G4	Connect to the – terminal of the B7A Link Terminal to be connected to port 4.		
(13)	+ power supply: V	Connect to the + terminal of the external power supply.	–	
(14)	– power supply: G	Connect to the – terminal of the external power supply.		

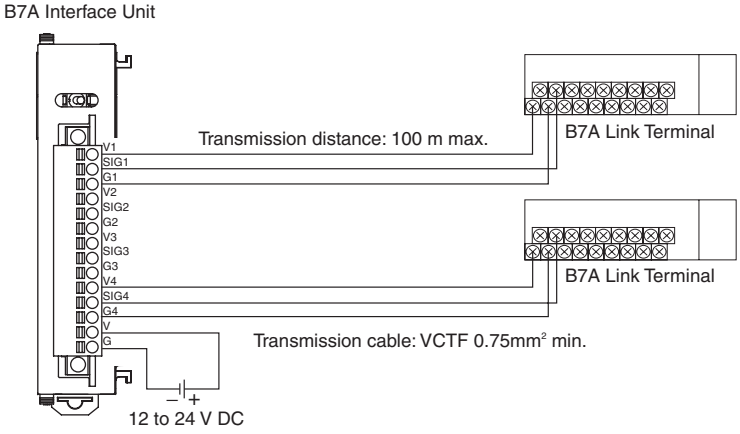


Note: Terminals V1, V2, V3, V4, and V are connected internally in the Unit, and terminals G1, G2, G3, G4, and G are connected internally in the Unit.

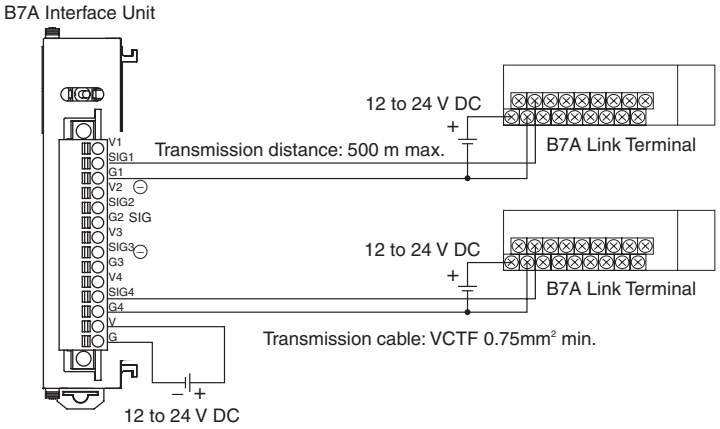
Wiring Methods

Standard Mode

Power Supply on One Side (Common Power Supply)



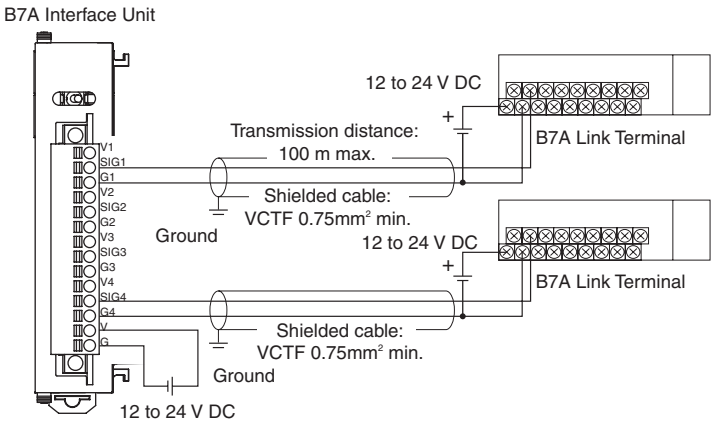
Power Supply on Both Sides (Separate Power Supplies)



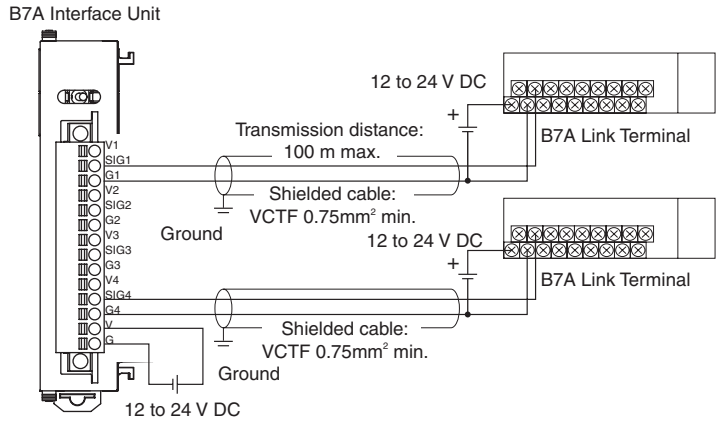
High-speed Mode

Note: If shielded cable is not used, the maximum transmission distance is 10 m regardless of whether a common or separate power supplies are used. (Use VCTF cable of 0.75 mm² or higher.)

Power Supply on One Side (Common Power Supply)



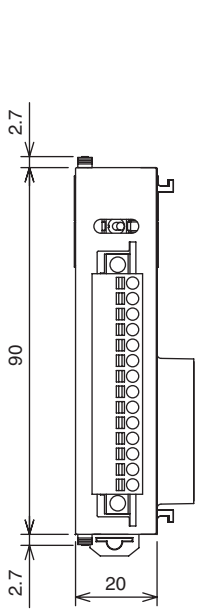
Power Supply on Both Sides (Separate Power Supplies)

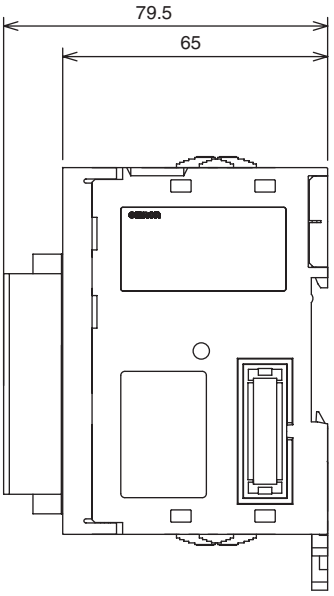


Dimensions

(Unit: mm)

CJ1W-B7A14/04/22





Related Manual

Cat.No.	Name	Contents
W472	CJ-series CJ2 CPU Unit Hardware User's Manual CJ2H-CPU6□-EIP CJ2H-CPU6□ CJ2M-CPU□□	Describes the following for CJ2 CPU Units: • Overview and features • Basic system configuration • Part nomenclature and functions • Mounting and setting procedure • Remedies for errors • Also refer to the Software User's Manual (W473).
W393	SYSMAC CJ Series CJ1H-CPU□□H-R, CJ1G/H-CPU□□H, CJ1G-CPU□□P, CJ1G-CPU□□, CJ1M-CPU□□ Programmable Controllers OPERATION MANUAL	Provides an outlines of and describes the design, installation, maintenance, and other basic operations for the CJ-series PLCs.
W500	NJ-series CPU Unit Hardware User's Manual NJ501-□□□	An introduction to the entire NJ-series system is provided along with the following information on a Controller built with an NJ501 CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection Use this manual together with the NJ-series CPU Unit Software User's Manual (Cat. No.W501).

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