Bit Slave Units with Compact Connectors

CRT1B-□D02JS(-1)/□D04JS(-1)

Bit slave of smallest class in industry
Innovation in wiring for any type of machinery

- Available in 2 types: 2-point Bit Slave Unit and 4-point Bit Slave Unit.
- Compact size for installation in limited space. Save space and wiring since bit slave can be installed near I/O devices.
- Industry first bit slave connectable with round cables which can be easily purchased at a lower price. Connectable with flat cables, too for easy wiring. Cables are selectable depending on applications.

Ordering Information

Name	Specifications			Model
Compact Connectors	Inputs	2 inputs	NPN	CRT1B-ID02JS
		2 outputs	PNP	CRT1B-ID02JS-1
	Outputs	2 inputs	NPN	CRT1B-OD02JS
		2 outputs	PNP	CRT1B-OD02JS-1
	Inputs/Outputs	1 input/1 output	NPN	CRT1B-MD02JS
		1 input/1 output	PNP	CRT1B-MD02J-1
	Inputs	4 inputs	NPN	CRT1B-ID04JS
		4 outputs	PNP	CRT1B-ID04JS-1
	Outputs	4 inputs	NPN	CRT1B-OD04JS
		4 outputs	PNP	CRT1B-OD04JS-1
	Inputs/Outputs	2 inputs/2 outputs	NPN	CRT1B-MD04JS
		2 inputs/2 outputs	PNP	CRT1B-MD04JS-1
Mounting Bracket				CRT1-ATT03

● Peripheral Devices

For Round Cable I

Name	Model
Open Type Connector (for Unit connection) (Honda Tsushin Kogyo Co.,Ltd.)	HCN-TB4LMZG+ *1
Terminating Resistor	DRS1-T

For Round Cable II

Name	Model
Open Type Connector (for Unit connection) (Honda Tsushin Kogyo Co.,Ltd.)	HCN-TB4LMZG+ *1
Terminating Resistor	DCN4-TM4 *2
Flat Connector Socket	DCN4-TR4 *2

Note: The DCN4-MD4 Multidrop Connector cannot be used with Bit Slaves with Compact Connectors. Use Open Type Connector from Honda Tsushin Kogyo Co., Ltd.

For Flat Cable I

Name	Model
Flat Connector Socket	DCN4-TR4 *2
Flat Connector Plug	DCN4-BR4 *2
Flat Multidrop Connector Plug	DCN4-MR4 *2
Terminating Resistor	DCN4-TM4 *2
Special Tools	DWT-A01

Note: The DCN4-MD4 Multidrop Connector cannot be used with Bit Slaves with Compact Connectors.

*1 For information of HCN-TB4LMZG+, contact to Honda Tsushin Kogyo Co.,Ltd. Tel:+81-52-242-2111
*2 The minimum quantity packaged is 10 Connectors.Oder the Connectors in multiples of 10.

● Compact Connectors

The compact connectors use XA-series Connectors from JST Mfg. Co., Ltd. Special cable connectors must be attached for cables connecting to external devices if a Slave Unit with Compact Connectors is used.

Name		Applicable cable range			Model	Crimping Tool
		mm²	AWG#	Wire sheath external diameter		
Contacts	Loose terminal	0.08 to 0.33	28 to 22	1.2 to 1.9	BXA-001T-P0.6	YC-692R
	Chain terminal				SXA-001T-P0.6	YRS-692
	Loose terminal	0.22 to 0.5	24 to 20	1.5 to 1.9	BXA-01T-P0.6	YC-701R
	Chain terminal				SXA-01T-P0.6	YRS-701
Housing	---	---			XAP-03V-1	---

Note 1. Automated Crimp Tools are also available. For details, contact the manufacturer.
2. For information on the processing procedure, refer to the instruction manual included with the tool or contact the manufacturer (JST Mfg. Co., Ltd.).

Performance Specifications

For Basic Performance Specifications of Slave Units, refer to page 30.

Input Section Specifications

Item	Specification			
Model	CRT1B-ID02JS	CRT1B-ID02JS-1	CRT1B-ID04JS	CRT1B-ID04JS-1
I/O capacity	2 inputs		4 inputs	
Internal I/O common	NPN	PNP	NPN	PNP
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)
OFF voltage	---	---	---	---
OFF current	1.0 mA max.		1.0 mA max.	
Input current	3.0 mA min./input (at 10.5 VDC)		3.0 mA min./input (at 10.5 VDC)	
Sensor power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage –1 V (min.)		Communications power supply voltage 0 V (max.) Communications power supply voltage –1 V (min.)	
ON delay	1.5 ms max.		1.5 ms max.	
OFF delay	1.5 ms max.		1.5 ms max.	
Number of circuits per common	2 inputs/common		4 inputs/common	
Power short-circuit detection	Not supported.		Not supported.	
Isolation method	No isolation		No isolation	
Input indicators	LEDs (yellow)		LEDs (yellow)	
Degree of protection	IEC standard IP20		IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket		M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply		Network power supply	
Communications power supply current consumption *	25 mA max. for 24-VDC power supply voltage 30 mA max. for 14-VDC power supply voltage		35 mA max. for 24-VDC power supply voltage 40 mA max. for 14-VDC power supply voltage	
Input device supply current	50 mA/point (G terminal)	50 mA/point (V terminal)	50 mA/point (G terminal)	50 mA/point (V terminal)
Weight	16 g max.		21 g max.	

* The current consumption is for Bit Slave Unit communications current when all inputs are OFF, i.e., it does not include input device current consumption. The communications power supply is also used for the I/O power supply for sensors. Be sure to consider the sensor current consumption and the number of sensors connected in addition to the communications power.
The power supply current consumption is expressed by the following formula.
Communications power supply current consumption = Bit Slave Unit communications current consumption + (Bit Slave Unit input current × number of inputs used) + (sensor current consumption × number of sensors used)

Output Section Specifications

Item	Specification			
Model	CRT1B-OD02JS	CRT1B-OD02JS-1	CRT1B-OD04JS	CRT1B-OD04JS-1
I/O capacity	2 outputs		4 outputs	
Internal I/O common	NPN	PNP	NPN	PNP
Rated output current	0.1 A/output		0.1 A/output	
Load power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage -1.2 V (min.)		Communications power supply voltage 0 V (max.) Communications power supply voltage -1.2 V (min.)	
Residual voltage	1.2 V max. (0.1 A DC, between each output terminal and G terminal)	1.2 V max. (0.1 A DC, between each output terminal and V terminal)	1.2 V max. (0.1 A DC, between each output terminal and G terminal)	1.2 V max. (0.1 A DC, between each output terminal and V terminal)
Leakage current	0.1 mA max.		0.1 mA max.	
ON delay	0.5 ms max.		0.5 ms max.	
OFF delay	1.5 ms max.		1.5 ms max.	
Number of circuits per common	2 outputs/common		4 outputs/common	
Load short-circuit detection	Not supported.		Not supported.	
Isolation method	No isolation		No isolation	
Output indicators	LEDs (yellow)		LEDs (yellow)	
Degree of protection	IEC standard IP20		IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket		M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply		Network power supply	
Communications power supply current consumption (See note.)	25 mA max. for 24-VDC power supply voltage 30 mA max. for 14-VDC power supply voltage		30 mA max. for 24-VDC power supply voltage 35 mA max. for 14-VDC power supply voltage	
Output device supply current	30 mA/point (G terminal)	30 mA/point (V terminal)	30 mA/point (G terminal)	30 mA/point (V terminal)
Weight	16 g max.		21 g max.	

* The current consumption is for Bit Slave Unit communications current when all outputs are OFF, i.e., it does not include the output device load current consumption. The communications power supply is also used for the I/O power supply for actuators. Be sure to consider the actuator load current consumption and the number of sensors connected in addition to the communications power. The power supply current consumption is expressed by the following formula.

Communications power supply current consumption = Bit Slave Unit communications current consumption + (actual load current × number of actuators used)

Input and Output Section Specifications

●1-point Input and 1-point Output units

Input Section Specification

Item	Specification	
Model	CRT1B-MD02JS	CRT1B-MD02JS-1
I/O capacity	1 input	
Internal I/O common	NPN	PNP
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)
OFF voltage	---	---
OFF current	1.0 mA max.	
Input current	3.0 mA min./input (at 10.5 VDC)	
Sensor power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage -1 V (min.)	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	1 input/common	
Power short-circuit detection	Not supported.	
Isolation method	No isolation	
Input indicators	LEDs (yellow)	
Degree of protection	IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply	
Communications power supply current consumption *	25 mA max. for 24-VDC power supply voltage 30 mA max. for 14-VDC power supply voltage	
Input device supply current	50 mA/point (G terminal)	50 mA/point (V terminal)
Weight	16 g max.	

Output Section Specification

Item	Specification	
Model	CRT1B-MD02JS	CRT1B-MD02JS-1
I/O capacity	1 output	
Internal I/O common	NPN	PNP
Rated output current	0.1 A/output	
Load power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage –1.2 V (min.)	
Residual voltage	1.2 V max. (DC, 0.1 A, between each output terminal and G terminal)	1.2 V max. (DC, 0.1 A, between each output terminal and V terminal)
Leakage current	0.1 mA max.	
ON delay	0.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	1 output/common	
Load short-circuit detection	Not supported.	
Isolation method	No isolation	
Output indicators	LEDs (yellow)	
Degree of protection	IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply	
Output device supply current	30 mA/point (G terminal)	30 mA/point (V terminal)

* The current consumption is for Bit Slave Unit communications current when all inputs are OFF, i.e., it does not include input device current consumption. The communications power supply is also used for the I/O power supply for sensors. Be sure to consider the sensor current consumption and the number of sensors connected in addition to the communications power. The power supply current consumption is expressed by the following formula.

Communications power supply current consumption = Bit Slave Unit communications current consumption + (Bit Slave Unit input current × number of inputs used) + (sensor current consumption × number of sensors used)

● 2-points Inputs and 2-points Outputs units

Input Section Specification

Item	Specification	
Model	CRT1B-MD04JS	CRT1B-MD04JS-1
I/O capacity	2 inputs	
Internal I/O common	NPN	PNP
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)
OFF voltage	---	---
OFF current	1.0 mA max.	
Input current	3.0 mA min./input (at 10.5 VDC)	
Sensor power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage –1 V (min.)	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	2 inputs/common	
Power short-circuit detection	Not supported.	
Isolation method	No isolation	
Input indicators	LEDs (yellow)	
Degree of protection	IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply	
Communications power supply current consumption *	35 mA max. for 24-VDC power supply voltage 40 mA max. for 14-VDC power supply voltage	
Input device supply current	50 mA/point (G terminal)	50 mA/point (V terminal)
Weight	21 g max.	

Output Section Specification

Item	Specification	
Model	CRT1B-MD04JS	CRT1B-MD04JS-1
I/O capacity	2 outputs	
Internal I/O common	NPN	PNP
Rated output current	0.1 A/output	
Load power supply voltage	Communications power supply voltage 0 V (max.) Communications power supply voltage –1.2 V (min.)	
Residual voltage	1.2 V max. (DC, 0.1 A, between each output terminal and G terminal)	1.2 V max. (DC, 0.1 A, between each output terminal and V terminal)
Leakage current	0.1 mA max.	
ON delay	0.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	2 outputs/common	
Load short-circuit detection	Not supported.	
Isolation method	No isolation	
Output indicators	LEDs (yellow)	
Degree of protection	IEC standard IP20	
Installation	M4 screw mounting using CRT1B-ATT03 Mounting Bracket	
Power supply type	Network power supply	
Output device supply current	30 mA/point (G terminal)	30 mA/point (V terminal)

* The current consumption is for Bit Slave Unit communications current when all inputs are OFF, i.e., it does not include input device current consumption. The communications power supply is also used for the I/O power supply for sensors. Be sure to consider the sensor current consumption and the number of sensors connected in addition to the communications power. The power supply current consumption is expressed by the following formula.

Communications power supply current consumption = Bit Slave Unit communications current consumption + (Bit Slave Unit input current × number of inputs used) + (sensor current consumption × number of sensors used)

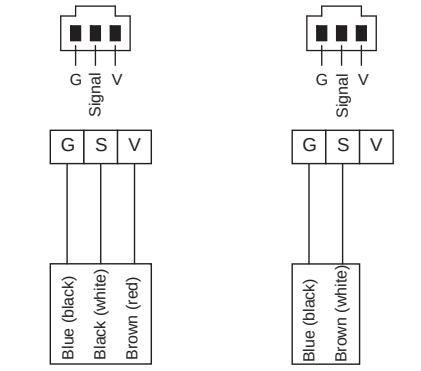
Wiring

Wire colors have been changed according to revisions in the JIS standards for photoelectric and proximity sensors.
The colors in parentheses are the wire colors prior to the revisions.

The I/O connector section uses compact connectors. Pin arrangements and signals are shown below.
The figure of connector shows the side to insert cables.

●2-points Inputs/4-points Inputs type

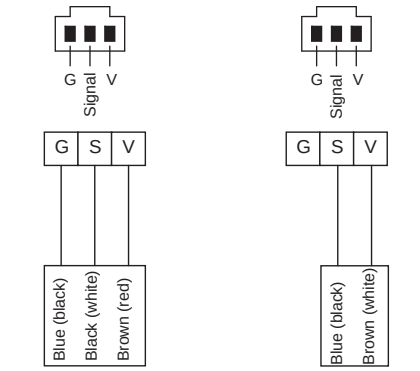
CRT1B-ID02JS (NPN)
CRT1B-ID04JS (NPN)



3-wire sensor with NPN output (photoelectric sensor or proximity sensor)

2-wire sensor (e.g., limit switch)

CRT1B-ID02JS-1 (PNP)
CRT1B-ID04JS-1 (PNP)

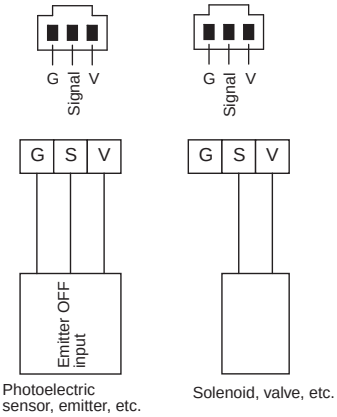


3-wire sensor with PNP output (photoelectric sensor or proximity sensor)

2-wire sensor (e.g., limit switch)

●2-points Outputs/4-points Outputs type

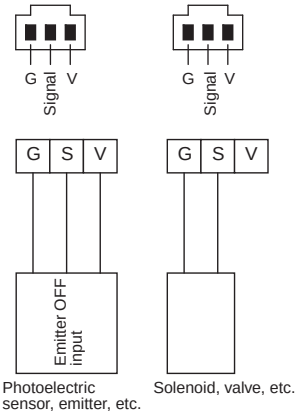
CRT1B-OD02JS (NPN)
CRT1B-OD04JS (NPN)



Photoelectric sensor, emitter, etc.

Solenoid, valve, etc.

CRT1B-OD02JS-1 (PNP)
CRT1B-OD04JS-1 (PNP)



Photoelectric sensor, emitter, etc.

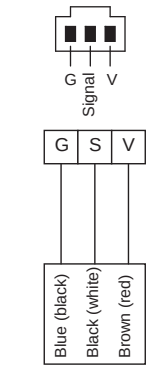
Solenoid, valve, etc.

● **1-point Input/1-point Output type, 2-points Inputs/2-points Outputs type**

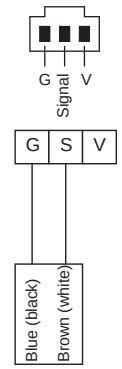
CRT1B-MD02JS (NPN)

CRT1B-MD04JS (NPN)

Input Connectors

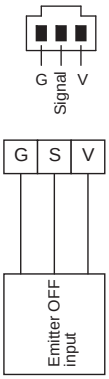


3-wire sensor with NPN output (photoelectric sensor or proximity sensor)

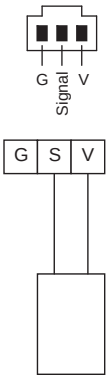


2-wire sensor (e.g., limit switch)

Output Connectors



Photoelectric sensor, emitter, etc.

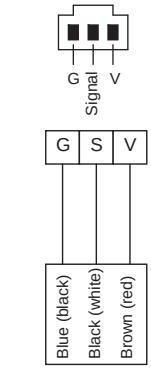


Solenoid, valve, etc.

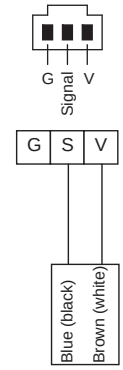
CRT1B-MD02JS-1 (PNP)

CRT1B-MD04JS-1 (PNP)

Input Connectors

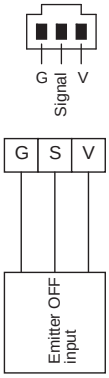


3-wire sensor with PNP output (photoelectric sensor or proximity sensor)

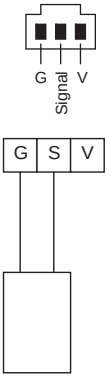


2-wire sensor (e.g., limit switch)

Output Connectors



Photoelectric sensor, emitter, etc.



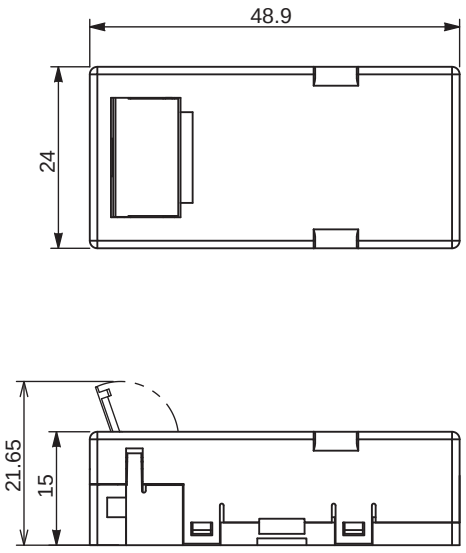
Solenoid, valve, etc.

Dimensions

(Unit: mm)

●2-points Inputs, 2-points Outputs, 1-point Input/1-point Output type

CRT1B-ID02JS
CRT1B-ID02JS-1
CRT1B-OD02JS
CRT1B-OD02JS-1
CRT1B-MD02JS
CRT1B-MD02JS-1



●4-points Inputs, 4-points Outputs, 2-points Inputs/2-points Outputs type

CRT1B-ID04JS
CRT1B-ID04JS-1
CRT1B-OD04JS
CRT1B-OD04JS-1
CRT1B-MD04JS
CRT1B-MD04JS-1