PRODUCT NEWS

Product Discontinuation Notices

March 2, 2009

Programmable Controllers

No.2009080E

Discontinuation Notice of High-Speed Counter Unit. C500-CT012

Product Discontinuation	Recommended Replacement
C500-CT012	C500-CT021

Discontinuation date : The end of March, 2010

Caution on recommended replacement

The replacement from 1 axis specification of "C500-CT012" to 2 axis specification of "C500-CT021" is necessary.

The operation mode of "C500-CT021" is selected 2 modes of "linear counter" and "circular counter". "C500-CT012" is "circular counter" only.

Difference from discontinued product

Model	Body Color	Dimensions	Wire connection	Mounting Dimensions	Characteristics	Operation ratings	Operation methods
C500-CT021	**	*	--	*	*	--	--

** : Fully compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Product Discontinuation and recommended replacement

Product discontinuation		Recommended replacement	
Model	Product code	Model	Product code
C500-CT012	3GA55430M	C500-CT021	3GA56032G

OMRON Corporation
Industrial Automation Company

Dimensions

Product discontinuation C500-CT012	Recommended replacement C500-CT021
250(H) × 34.5(W) × 115(D)mm (Inc. Terminal height)	250(H) × 34.5(W) × 115(D)mm (Inc. Terminal height)

Wire Connection

Product discontinuation C500-CT012	Recommended replacement C500-CT021
By terminal	By terminal

Characteristic

Product discontinuation
C500-CT012

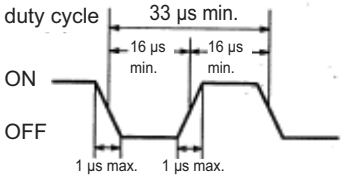
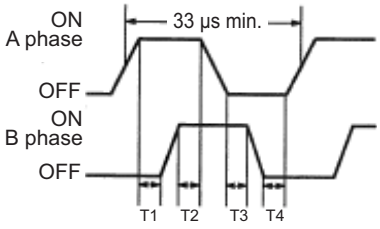
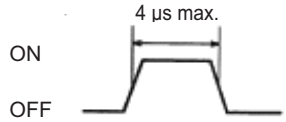
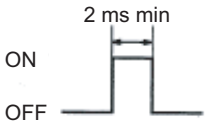
Specifications

CT012

No. of axes			1 axis/Unit
I/O Points consumed			2 words (32 points)
Count inputs		Input signals	Encoder input A Encoder input B
		Signal levels	5, 12, 24 VDC Voltage determined by terminal block wiring.
		Input modes	Phase differential Pulse and direction) DIP Switch-selectable
		Input frequency	Non-contact input: 50 kHz max. Contact input: 30 Hz max. (pulse and direction mode) (Frequency is dependent upon encoder specifications. Refer to following page.)
Control inputs		Input signals	Pulse input Z EXT control input (reset/preset): DIP switch-selectable
		Signal levels	5, 12, 24 VDC (EXT is 5 or 12 to 24 VDC) Voltage determined by terminal block wiring.
		Input modes	Counter's Present Value reset/preset by: Mode 1: concurrent EXT and Z signals. Mode 2: EXT and the first concurrent Z pulse. Mode 3: EXT (latched) and first concurrent Z pulse. Mode 4: EXT signal only.
Coinci-dence	Flags	No. of points	8
		Coincidence range	0 to 999999 (6 digits, BCD) 500000 to 999999 are treated as negative values.
		Coincidence status	'1' when min. coincidence data ≤ Present Value ≤ max. coincidence data.
	Out-puts	Outputs	8 points: external coincidence outputs 0 through 7
		Sink current	Open collector outputs, max. 100 mA at 24 VDC (output power supply: 5 to 24 VDC).
Data transfer modes (DIP switch-selectable)			Mode 1: blocks of data transferred via Intelligent I/O Read/Write (use only when mounted on PC or Expansion I/O Rack). Mode 2: commands transferred via MOV (use only when mounted on Remote I/O Rack).
Current consumption			550 mA max. 5 VDC (supplied by Backplane)
Dimensions (mm)			250(H)×34.5(W)×115(D) (including terminal block)
Weight			660 grams (including terminal block)

Characteristic

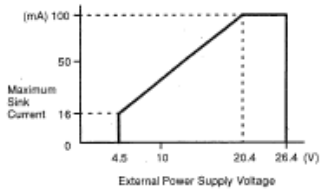
Product discontinuation
C500-CT012

Item	Encoder inputs A, B, Pulse Input Z			EXT	
Input Voltage	5 VDC +/-5%	12 VDC +/-10%	24 VDC +/-10%	5 VDC +/- 5%	12/24VDC +/-10%
Input Current	10 mA(typ.)	10 mA(typ.)	10 mA(typ.)	10 mA(typ.)	5/10 mA(typ.)
ON Voltage	4.5 V min.	10.2 min.	21.6 min.	4.5 min.	10.2 V min.
OFF Voltage	1.5 V max.	3.0 max.	4.0 max.	1.5 max.	3.0 V max.
ON/OFF Response Time	4 µs max.			2 ms max.	
Minimum Pulse Width	**Encoder Inputs A, B** Waveforms of Encoder Inputs A, B (Phase differential input mode) Input rise, fall times: 1 µs max. 30 kHz, 50% duty cycle  Relationship between A and B phases for phase differential input mode  T1, T2, T3, T4: 3 µs min. Pulse Input Z  			 	

Output Specifications

Item	External Outputs 0 to 7
Maximum Sink Current	16 mA 4.5 VDC to 100 mA 26.4 VDC (See graph below) Maximum of 400 mA/Common
Leakage Current	0.1 mA max.
V_{on} max.	0.4 V max.
In→Out Response Time	1 ms max. See Note 1
External Power Supply	5 to 24 VDC ±10% (Maximum 800 mA at 26.4 V)

• Maximum Sink Current vs External Power Supply Voltage



Note In→Out response time is the interval between the arrival of an input pulse that affects the coincidence output status and the point at which the corresponding output(s) are switched ON or OFF. However, the 1 ms maximum may be exceeded if the pulse arrives:
1) during the period between completion of data initialization and enabling of the output enable flags when power is applied (mode 1); or
2) during an access of the High-speed Counter via the user program to change coincidence data, preset data, etc.

CAUTION If the output current exceeds 0.5 A/common (4 points) the internal fuse will burn out, disabling the Unit. The fuse is not user-replaceable.

Characteristic

Recommended replacement
C500-CT021

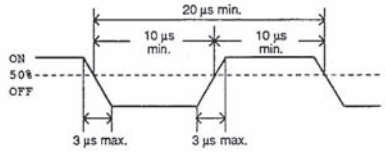
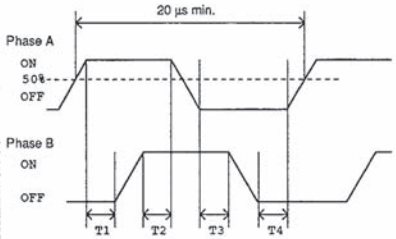
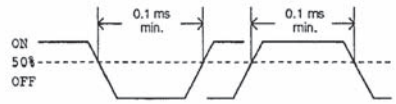
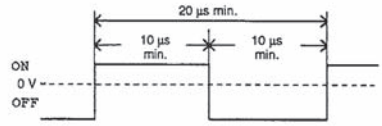
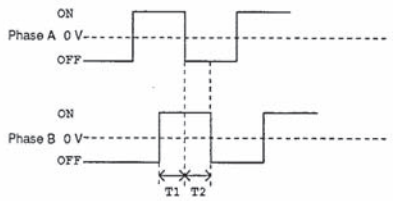
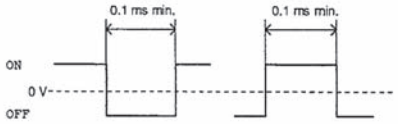
Specifications

Item		Specification
Number of axes		2 axes/Unit
Operating modes		The 7 operating modes are listed below. A different mode can be set for each axis on each Unit. Simple linear mode Linear mode Circular mode Preset mode Gate mode Latch mode Sampling mode
Count inputs	Input signals	Encoder input A, encoder input B
	Signal levels	5 VDC, 12 VDC, and 24 VDC (open collector/line driver)
	Input modes	Offset phase inputs (×1/×4) Up and down pulse inputs Pulse + direction inputs
	Counting rate	50K cps max. (The offset phase input has a ×4 input multiplier function.)
External inputs	Input signal	Pulse input Z
	Signal levels	5 VDC, 12 VDC, and 24 VDC (open collector/line driver)
	Input signal	One control input (Used with the preset function, reset function, gate counter, sampling counter, preset counter, and latch counter.)
	Signal levels	12 VDC and 24 VDC
External outputs	Outputs	External outputs 0 to 7, 8 points/Unit (Can be allocated freely to each comparison set value.)
	Switching capacity	50 mA at 5 VDC to 300 mA at 24 VDC
Internal current consumption		350 mA max. at 5 VDC (Supplied from Backplane.)
Dimensions		250 × 34.5 × 115 mm (H × W × D) including the terminal block's height.
Weight		500 g max.

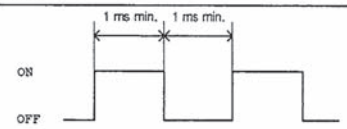
Characteristic

Recommended replacement
C500-CT021

Input Characteristics (Open Collector/Line Driver Inputs)

Item	Encoder Input A, Encoder B, Pulse Input Z			Encoder Input A, Encoder B, Pulse Input Z
Input voltage	5 VDC ±5%	12 VDC ±10%	24 VDC ±10%	Conform to RS-422 line driver (Am26LS31 or equivalent) specifications. (The power supply voltage of the connecting side is 5 VDC ±5%.)
Input current	14 mA TYP.	8 mA TYP.		
ON voltage (min.)	4.5 VDC	10.2 VDC	20.4 VDC	
OFF voltage (max.)	1.5 VDC	3.0 VDC	4.0 VDC	
Minimum response pulse	Encoder Input A/Encoder B waveform: The input's rise/fall time is 3 µs max. (Equivalent to a 50-Khz signal with a 50% duty ratio.)  A and B phases in offset phase inputs: The variation between phases A and B (T1/T2/T3/T4) is 2.5 µs min.  Pulse input Z: The pulse width is 0.1 ms min.  Be sure to leave an input interval of at least 1.5 ms between Z input pulses.	Encoder Input A/Encoder B (+) terminal waveform: Equivalent to a 50-Khz signal with a 50% duty ratio.  A and B phases in offset phase inputs: The variation between phases A and B is 2.5 µs min.  Pulse input Z: A pulse width of at least 0.1 ms min. is required.  Be sure to leave an input interval of at least 1.5 ms between Z input pulses.

External Control Inputs

Item	External Control Input
Input voltage	12 to 24 VDC ±10%
Input current	4 to 11 mA
ON voltage (min.)	10.2 VDC
OFF voltage (max.)	3.0 VDC
ON/OFF delay	1 ms max.
Minimum response pulse	 When accessing these signals from the PC, the signals must be ON longer than the PC's cycle time.

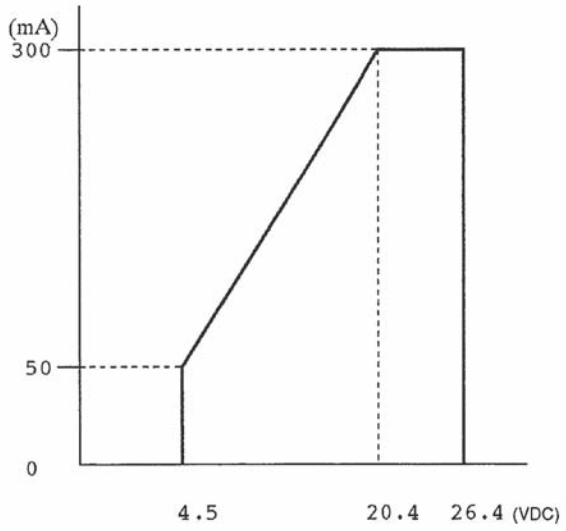
Characteristic

Recommended replacement
C500-CT021

Output Characteristics

Item	External Outputs 0 to 7
Number and type of outputs	8 transistor outputs/Unit
Max. switching capacity	50 mA at 4.5 VDC to 300 mA at 26.4 VDC (See the following graph.)
Leakage current	0.1 mA max.
Residual voltage	0.8 V max.
I/O response time (Count comparison to external output)	Simple linear mode: 1 ms max. Any other mode: 1.5 ms max.
External power supply	5 to 24 VDC ±10%

The maximum switching current depends upon the power supply voltage, as shown below.



Operation methods

Product discontinuation C500-CT012	Recommended replacement C500-CT021
a. The Operation mode of "C500-CT012" is "circular counter" only.	a. The operation mode of "C500-CT021" is selected 2 modes of "linear counter" and "circular counter".