

CS1W-MC421/-MC221

# Motion control units

## High-precision, motion controller with multi-tasking G-language programming

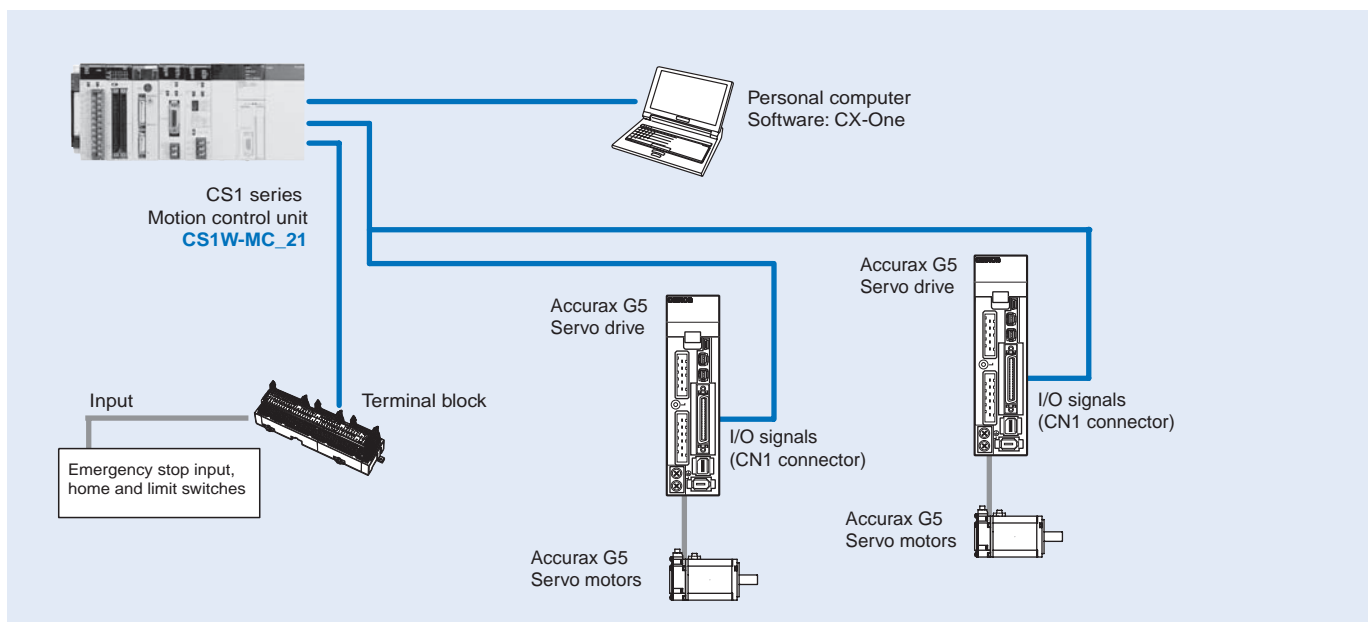
- High-speed control of up to 4 axes with one unit and up to 76 axes with one PLC (19 units x 4 axes) (assumes that power supply unit capacity is not exceeded).
- Winding operations easily controlled at high-speed using traverse positioning control.
- High-speed response to commands from CPU unit (8 ms for 2 axes, 13 ms for 4 axes).
- Encoder response of 2 Mpps possible with 4x frequency multiplication for applications with high-speed, high-precision servo motors.
- D interrupt code outputs to CPU unit at end of positioning or at specified positions (D code output time: 3.3 ms max.).
- CX-motion Windows-based support software define user mnemonics to use in place of G codes to simplify MC program development and analysis.
- Servo trace function from CX-motion to trace error counter changes or motor speeds.
- Automatic loading function  
MC programs and positioning data can be automatically downloaded from computer memory when required by the MC unit.



## Function

The motion controller provides closed-loop motion control via analog outputs for up to 4 axes, and supports the G language for advanced, high-speed, high-precision position control. Multi-tasking allows you to run the axes independently for a wider range of application.

## System configuration



**Specifications**

**General**

<b>Model</b>	<b>CS1W-MC421-V1</b>	<b>CS1W-MC221-V1</b>	
<b>Classification</b>	CS1 Special I/O unit		
<b>Control method</b>	Closed loop with automatic trapezoid or S-curve acceleration/deceleration		
<b>Control output signals</b>	Analog		
<b>Internal programming language</b>	G language (program started by command sent from CPU unit's ladder program.)		
<b>Controlled axes</b>	4 axes max.	2 axes max.	
<b>Maximum position value</b>	-39,999,999 to 39,999,999 (for minimum setting unit of 1)		
<b>Synchronous axis control</b>	4 axes max.	2 axes max.	
<b>Positioning</b>	<b>Linear interpolation</b>	4 axes max.	2 axes max.
	<b>Arc interpolation</b>	2 axes max. in a plane	
	<b>Helical interpolation</b>	2-axis arc interpolation in a plane + feed axis	---
	<b>Traverse</b>	2-axis traverse feeding	
	<b>Infinite feed</b>	Infinite feeding of one or more axes	
	<b>Interrupt feed</b>	Interrupt feeding for specified axes (positioning can be specified for when there is no interrupt.)	
<b>Task programming capacity</b>	<b>Number of tasks</b>	4 tasks max.	2 tasks max.
	<b>Number of programs</b>	25 programs when using 4 tasks	50 programs when using 2 tasks
	<b>Program capacity</b>	500 blocks per task when using 4 tasks	1,000 blocks per task when using 2 tasks

**CX-Motion: Windows-based support software**

<b>Model</b>	WS02-MCTC1-EV□
<b>Supported MC units</b>	CS1W-MC221/421, C200H-MC221, and CV500-MC221/421
<b>Applicable computer</b>	DOS, OS: Windows 95/98 or Windows NT Version 4.0
<b>Functions</b>	Functions required for MC unit control: creating/editing/saving/printing system parameters, positioning data, and MC programs; monitoring MC unit operation

**Ordering information**

**Motion control unit**

Name	Model
2 axes motion control unit.	CS1W-MC221-V1
4 axes motion control unit.	CS1W-MC421-V1

**Accurax G5 servo drive cables**

Description	Connect to		Model
Axis control cable (1 axis)	Motion control units CS1W-MC221 (1 cable needed) CS1W-MC421 (2 cables needed)	1 m	R88A-CPG001M1
		2 m	R88A-CPG002M1
		3 m	R88A-CPG003M1
		5 m	R88A-CPG005M1
Axes control cable (2 axis)	Motion control units CS1W-MC221 (1 cable needed) CS1W-MC421 (2 cables needed)	1 m	R88A-CPG001M2
		2 m	R88A-CPG002M2
		3 m	R88A-CPG003M2
		5 m	R88A-CPG005M2

**I/O terminal block and cables**

Description	Connect to motion control unit		Model
Terminal block	CS1W-MC221	-	XW2B-20J6-6
	CS1W-MC421	-	XW2B-40J6-7
Cable form PLC unit to terminal block.	CS1W-MC221 CS1W-MC421	1 m	XW2Z-100J-F1

**Computer software**

Specifications	Model
CX-One	CX-One

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.