Oriental motor

(RoHS) **RoHS-Compliant**

Controller Module

CM10

Just Snap the **CM10** On!
Your "pulse input" type driver can now function as a "built-in controller package". You can have a great advantage when installing and wiring the controller. Also, the **CM10** is available to control the motor via various serial ports such as USB, RS-232C and **CAN**open, as well as via I/O.
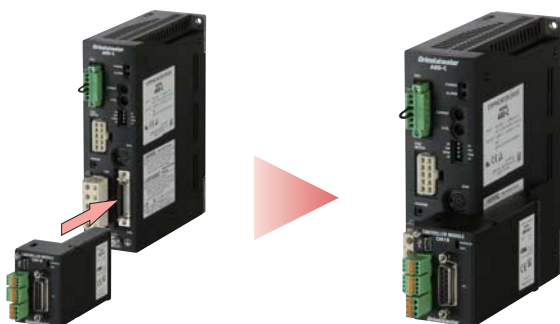
■Features

●Easy Installation
◇Integrated Controller Functions with Driver
You can simply mount the **CM10** to your driver. Since no separate controller is required, you can eliminate the wiring between the driver and controller.

*Driver shown in the photograph is for the **AR** Series. Please refer to the applicable drivers in the page 3.

A built-in controller system with multiple functions.

◇USB Port as Standard Equipment
CM10 has a mini USB port on the front panel and you can directly connect to your PC using a commercially available mini USB cable. This is advantageous for maintenance since a special cable or converter is not required.

PC software "Immediate Motion Creator for **CM/SCX** Series" (Included)
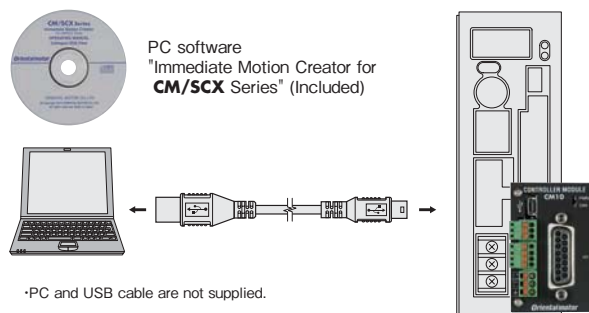
·PC and USB cable are not supplied.

●Easy Operation
### ◇Friendly PC Software (Windows GUI software)
The convenient and easy-to-use PC software, "Immediate Motion Creator for **CM/SCX** Series", is provided with the **CM10**. Setting the travel amount and speed, you can easily start an operation with clicking the start key. Also, you can easily create a program by selecting the commands. Other functions, such as real time monitor for the teaching position, current position and I/O status, system parameter setting and I/O assignment are available.
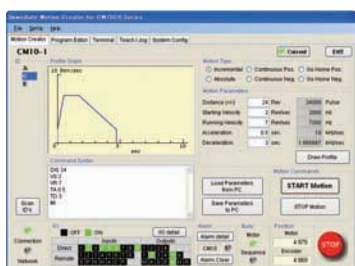
◇Intelligent Setting
Setting the "User Unit" parameter initially, you can program data for the speed and travel amount as the unit of your actual motion such as "mm", "inch" and "revolution".
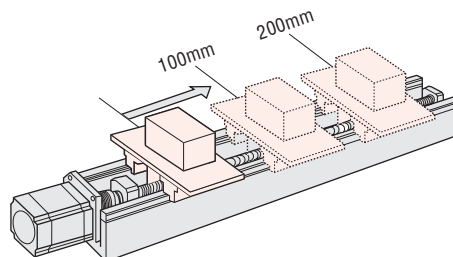
Two Types of Operations

◇ Direct Command Operation

You can operate a motor directly by sending commands via the serial port (USB, RS-232C, CANopen) from your PC or programmable controller.

This function is suitable for applications where positioning data is updated frequently or managed all at once by the PC or programmable controller.

```
>DIS=60
 DIS=60 mm
>VR=5
 VR=5 mm/sec.
>VS=1
 VS=1 mm/sec.
>TA=0.5
 TA=0.5
>TD=0.5
 TD=0.5
>MI
>
```
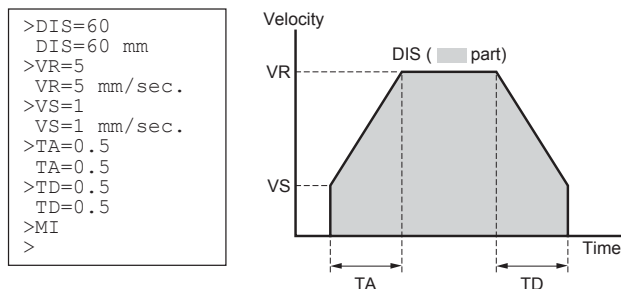

[Example Commands]

DIS	; Incremental Motion Distance
VR	; Running Velocity
VS	; Starting Velocity
TA	; Acceleration Time
TD	; Deceleration Time
MI	; Move Incremental Distance
MA	; Move to Absolute Position
MCP	; Move Continuously, Positive
MCN	; Move Continuously, Negative
MGHP	; Seek Mechanical Home Position
ALMCLR	; Clear Alarm Condition
.	
.	
.	

◇ Executing Sequence Operation [Stored Program Function]

This function is available for conditional branching using general-purpose I/Os, wait processes using internal timers, and other operations based on sequence control as well as setting the positioning and speed data.

The **CM10** can store up to 100 different programs. You can select and execute via USB, RS-232C, CANopen and I/O port.

[Example Program]

```
Seq 1
[ 1]   VS   1      ; Starting Velocity *
[ 2]   VR   9      ; Running Velocity *
[ 3]   TA   1      ; Acceleration Time
[ 4]   TD   2      ; Deceleration Time
[ 5]   DIS  2      ; Incremental Motion Distance *
[ 6]   LOOP 3      ; Begin Counted LOOP Block
[ 7]   MI          ; Move Incremental Distance
[ 8]   MEND        ; Wait for Motion End
[ 9]   WAIT 1      ; Wait for Specified Time
[10]   ENDL        ; End of LOOP Block
[11]   MA  0       ; Move to Absolute Position
[12]   MEND        ; Wait for Motion End
[13]   END         ; End Sequence
```
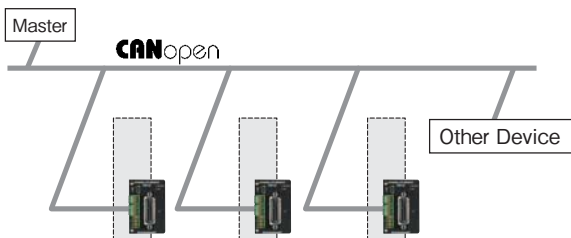
∗ You can set the speed and travel amount as the unit of your actual motion such as "mm", "inch" and "revolution".

Various Interfaces for Operation

### ◇ Direct Command Operation via CANopen

CM10 has a standard built-in interface for CANopen.

∗ CANopen for the **CM10** is certified by CiA (CAN in Automation).
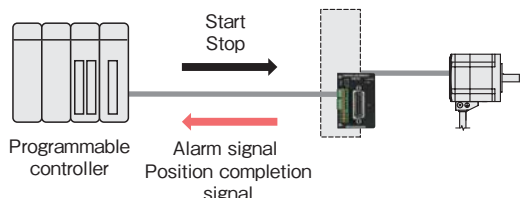

◇ Operation Using a PC

CM10 can connect to a PC via RS-232C or USB. The **CM10** can also be connected via an RS-232C daisy chain connection for multi-axis control with another **CM10** or other products such as the **ASX** Series all-in-one closed loop αSTEP motor.
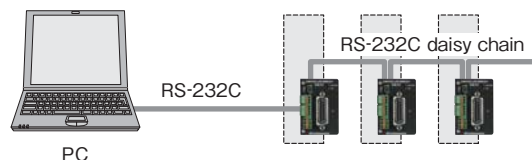
∗ Multi-axis control via USB is configured with multiple USB ports.

◇ Operation Using a Programmable Controller

CM10 can communicate a wide variety of signals via I/O to a programmable controller. Moreover, serial communication is available, if the programmable controller has a USB or RS-232C interface built-in.

◇ Stand-Alone Operation Using Sensors and Switches

CM10 can operate as a stand-alone controller by selecting the desired sequence. Utilizing 9 general inputs and 4 general outputs, you can configure a simple system without a PC or programmable controller.
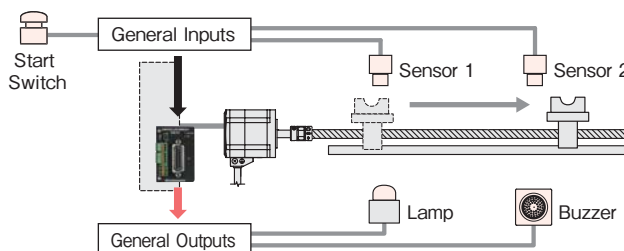
Other functions

◇ External Encoder Input

CM10 has a function for external encoder inputs which enables continuous monitoring of the feedback position and position error.
Line driver, open collector and TTL inputs are compatible.

Product Line

Model	Applicable Motor and Driver package (Series)	Applicable Driver Model
CM10-1	**AR** Series	ARD-A/ARD-C/ARD-S
CM10-2	**RBK** Series	RBD215A-K/RBD228A-K/RBD242A-V/RBD245A-V
CM10-3	**EZS II** Series, **SPV** Series,	ESMC-A2/ESMC-C2
CM10-3A	**EZC II** Series, **EZA** Series	ESMC-K2

Specifications

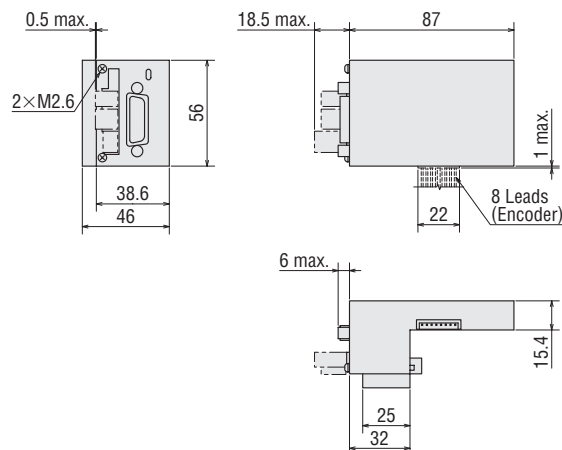|	Model	CM10-1	CM10-2	CM10-3	CM10-3A
Operation Mode		Immediate command / Stored program			
Sequence Programs	Number of sequence programs	Max.100			
	Program size	2kB Maxmum for total compiled sequences 4kB Maximum for 1 sequence (text+compiled data)			
	Programming Method	Immediate Motion Creator for **CM/SCX** Series [supplied software] or General terminal software			
	Function Example	Subroutines, Math/Logical operators, User variables			
Control	Number of Control axis	Single axis			
	Control Modes	Positioning operation (INDEX operation) Return to mechanical home operation (HOME operation) Continuous operation (SCAN operation) 1-pulse Operation (JOG operation)			
	Operating mode	Incremental / Absolute			
	Starting Velocity	0~1.24MHz (1Hz increments) ∗			
	Speed range	1Hz~1.24MHz (1Hz increments) ∗			
	Acceleration time	0.001~500sec (0.001 sec increments)			
	Position range	-2,147,483,648 to +2,147,483,647 pulses maximum			
	Mode for mechanical home seeking	3 sensor mode, 2 sensor mode, 1 sensor mode (+LS, -LS, Home, Sensor, Timing)			
	Features	User Unit, Teaching Positions, Linked Motion, Multi Axis Operation, External encoder input, Protective Functions			
Driver Interface	Pulse Output	1 Pulse Mode/2 Pulse Mode Line Driver Output (Line receiver input /Photo-coupler input compatible)			
	I/O	Snap-on connection			
External Encoder Input		A-phase, B-phase, Index Max. Frequency 1MHz Line-driver, Open collector and TTL compatible Built-in 5V power supply			
I/O	Input	9 signals (configurable) Photo-coupler inputs Input voltage 4.25-26.4V Input resistance 5.4kΩ			
	Output	4 signals (Configurable) Photo-coupler open-collector outputs DC30V 20mA or less			
Serial Commnication	USB	USB2.0 compatible (Virtual COM port) Mini USB terminal			
	RS-232C	Start-stop synchronous method, NRZ (Non-Return Zero), full-duplex 9600, 19200, 38400, 57600, 115200 bps (9600 is default.) Daisy-Chain compatible (up to 36 axis)			
	CANopen	CiA Draft Standard 301 Ver4.02 compliant certified by CiA (CiA201001-301V402/22-0114)			
Power Input	Voltage	24VDC ± 10%			
	Current	0.13A		0.16A	
Mass		0.24kg			
Environmental Condition	Ambient Temperature	0-50°C (non-freezing)			
	Ambient Humidity	20-85% (non-condensing)			

∗ Values vary depending on the driver.
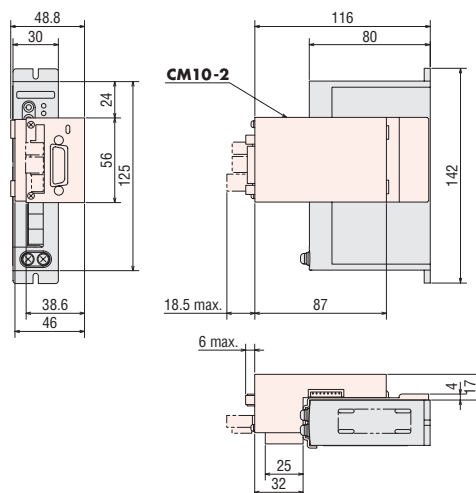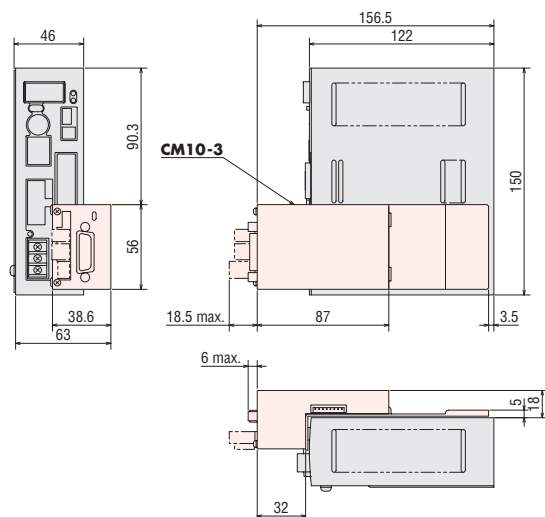
Dimensions (Unit = mm)

◇**CM10-1/CM10-3/CM10-3A**
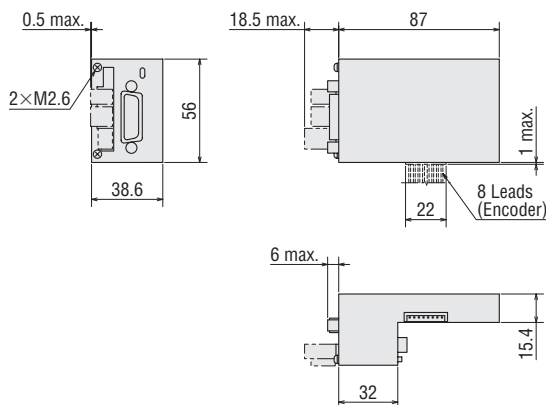
◇**CM10-2**

◇When in combination with the **AR** Series
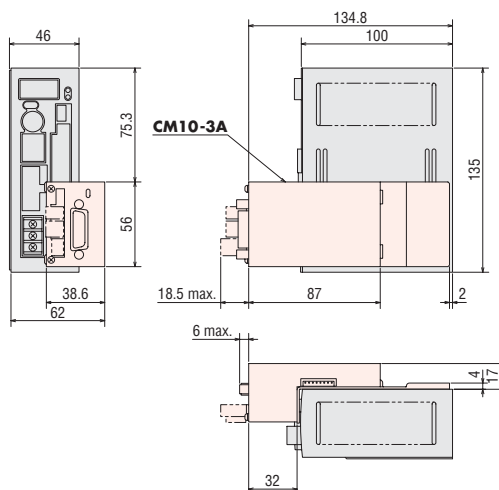

CM10-1

45
160
125
160
92.3
56
18.5 max.
87
27
38.6
62
6 max.
4
17
32
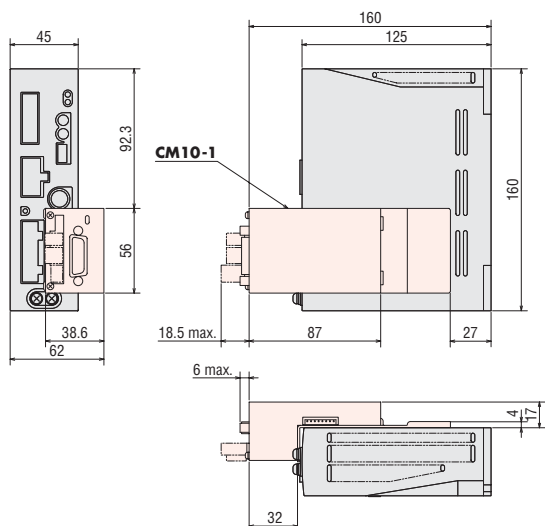
◇When in combination with the **RBK** Series

CM10-2

48.8
30
116
80
24
56
125
142
38.6
46
18.5 max.
87
6 max.
4
17
25
32

◇When in combination with the **EZS Ⅱ** Series, **SPV** Series, **EZC Ⅱ** Series, **EZA** Series　　　(AC input type)

CM10-3

46
156.5
122
90.3
150
56
18.5 max.
87
3.5
38.6
63
6 max.
5
18
32

◇When in combination with the **EZS Ⅱ** Series, **SPV** Series, **EZC Ⅱ** Series, **EZA** Series　　　(DC input type)

CM10-3A

46
134.8
100
75.3
135
56
18.5 max.
87
2
38.6
62
6 max.
4
17
32

For more information, please read the "Operating Manual" for the use of this product, or please contact the nearest Oriental Motor sales office.

Orientalmotor

This product is manufactured at a plant certified with the international standards **ISO 9001** (for quality assurance) and **ISO14001** (for systems of environmental management).

Specifications are subject to change without notice.
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