

Multi-axis CON Series **MCON** Position Controller for ROBO Cylinder®



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1 unit can control the stepper motor, AC servo motor, and brush-less DC motor 8-axis controller that achieves the small size and high functionality



Saves space and reduces cost

It saves space in the control panel and significantly reduces the total cost by combining 8 controllers into one.





Accommodates a wide range of actuators

It corresponds to actuators with battery-less absolute encoders, ultra-compact mini-cylinders, multi-rotation rotaries and the like, expanding the operable actuators from small to large. In addition, it is equipped with the PowerCON[®] (high-output driver), and achieves the maximum speed of 1.5 times higher and maximum load capacity of over 2 times higher than the conventional models by using in combination with the RCP5/RCP4.



Allows the installation of 7 types of driver boards

- (1) Battery-less absolute/incremental driver boards for stepper motor
- (2) Simple absolute driver board for stepper motor
- (3) Battery-less absolute/incremental driver boards for PowerCON®
- (4) Simple absolute driver board for PowerCON®
- (5) Battery-less absolute/incremental driver boards for AC servo motor
- (6) Simple absolute driver board for AC servo motor
- (7) Incremental driver board for brush-less DC motor



B Allows the servo monitoring in the AUTO mode

The AUTO mode status monitoring and servo monitoring that were only supported by single-axis controllers can now be performed using multi-axis controllers. In addition, the monitoring can start from the moment that the condition of a selected signal changed. (Trigger function)

You can easily save the data to be monitored.





Smart tuning function (for stepper motor)

- •The optimum acceleration and deceleration are set according to the payload to be conveyed.
- **Off-board tuning function (for AC servo motor)** •The optimum gain is set according to the payload.
- Vibration control function (for AC servo motor) · It reduces the shaking (vibration) of the workpiece attached to the slider.

Acceleration/deceleration mode specification

•The acceleration and deceleration patterns can be specified from the trapezoid pattern, first-order delay filter and S-shaped motion.

Axis name display function

•The axis name can be displayed in the PC compatible software and touch panel teaching box.

The calendar function allows the alarm occurrence time to be retained

With the addition of the clock function, the alarm history is displayed with the time of occurrence, making it easier for the alarm to be analyzed. (The retention period of the time data is 10 days after the power is cut.)

The number of alarms stored in the history is up to 32 per axis.

	1 200				
	Code	Massana	hdra	Detail	Time (V/M/D homes
setected last	777	PowerUP No Error			//
fistory 1	OES	Encoder data receive error		0000	//11-
distory 2	777	PowerUP No Error			//
fistory 3	025	Encoder data receive error		0000	//
fistory 4	777	PowerUP No Error			//11-
Latory 5	OES	Encoder data receive error		0000	//
distory 6	1777	PowerUP No Error			//
Aistory 7	025	Encoder data receive error		0000	//
flatory 8	1 777	PowerUP No Error			//
fistory 9	OES	Encoder data receive error		0000	//11-
distory 10	777	PowerUP No Error			//!!-
fistory 11	080	Motion command while in SERVO-OFF condition			16/06/07 08:33:4
Listory 12	777	PowerUP No Error			//
listory 13	025	Encoder data receive error		0000	//11-
listory 14	777	PowerUP No Error			//::-
Letory 15	OES	Encoder data receive error		0000	//
listory 16	177	PowerUP No Error			//!!
listory 17	OES	Encoder data receive error		0000	//11
fistory 18	111	PowerUP No Error			//!!
listory 19	025	Encoder data receive error		0000	//::
istory 20	1111	PowerUP No Error			/::
Latory 21	025	Encoder data receive error		0000	//11
Latory 22	TTT	PowerUP No Error			//
Latory 23	025	Encoder data receive error		0000	//11
istory 24	1111	PowerUP No Error			//11
istory 25	OES	Encoder data receive error		0000	//
istory 26	1111	PowerUP No Error			//11
istory 27	025	Encoder data receive error		0000	//11
istory 28	777	PowerUP No Error			//11
Letory 29	025	Encoder data receive error		0000	//11
listory 30	1111	PowerUP No Error			//11-
Listory 31	OES	Encoder data receive error		0000	//



- \cdot The number of positioning points per axis is 256.
- \cdot It can be operated by specifying the position to reach and speed in numerical values.
- \cdot The current position can be checked in real time.



List of Models

Type name	C/CG								
I/O type	DV CC PR CN EC EP PRT								
Name	DeviceNet connection specification	CC-Link connection specification	PROFIBUS-DP connection specification	CompoNet connection specification	EtherCAT connection specification	EtherNet/IP connection specification	PROFINET IO connection specification		
External view	* The fieldbus connector will be changed depending on the I/O type.								
Description	It is operated in connection with various fieldbus. The PIO control can be performed by serial communication or by sending position, speed, and acceleration data.								
Number of positioning points	* The numbe	256/axis er of positioning	; (There is no limit points varies dep	t when operated bending on the op	by directly sendi peration mode se	ng data) election set by th	e parameter.		

Model



3

Details of MCON Slots

(1) MCON has 4 slots.



(2) How to fill out the model name for each slot

Details of each slot
(1st axis: Top connector) (2nd axis: Bottom connector)
Motor Encoder Option Motor Encoder Option Type type Type Type

- 1. One driver board is used per one slot, and different motor types (Stepper motor/AC servo motor/Brush-less DC motor) or different encoder types (WAI/SA/I) cannot be connected on the same driver board.
- 2. Depending on the type of actuator, there are those that allow for 2 axes to be connected to 1 slot or only allow for 1 axis to be connected.

Number of axes that can be connected to 1 slot	Actuator type
1 axis	RCP5 (High-output setting enabled), RCP4 (High-output setting enabled)
2 axes	RCP5 (High-output setting disabled), RCP4 (High-output setting disabled) RCP3, RCP2, RCA2, RCA, RCD, RCL

- 3. If only 1 axis is connected to 1 slot, the model name of the second axis/bottom connector will be "N".
- 4. When using RCP5/RCP4 with high-output setting enabled, please enter "T" in the option column.

Entry examples for each slot

E.g. 1	When connecting 3 axes of RCP5-SA4C-WA-35P (High-output setting enabled)	E.g. 2 When connecting 2 axes of RCA-SA5C-I-20 or 1 axis of RCD-RA1DA-I-3
35	Slot 0 Slot 1 Slot 2 PWAIT-N-35PWAIT-N-35PWAIT-N	Slot 0 Slot 1 20WAI-20WAI-3DI-N

Please refer to the next page for the combination examples of each axis.

Combination Examples	Model Names of the Connected Actuators	Number of axes	
RCP5-SA6C RCP5-RA4C	1st axis: RCP5-SA6C-WA-42PPowerCON/Battery-less abs.2nd axis: RCP5-RA4C-WA-35PPowerCON/Battery-less abs.	2	
RCP5-SA6C RCP5-RA4C RCA-SA6C	1st axis: RCP5-SA6C-WA-42PStepper motor/Battery-less abs.2nd axis: RCP5-RA4C-WA-35PStepper motor/Battery-less abs.3rd axis: RCA-SA6C-WA-30AC servo/Battery-less abs.	3	
RCP5-SA4C RCP5-RA4C	1st axis: RCP5-SA4C-WA-35PPowerCON/Battery-less abs.2nd axis: RCP5-SA4C-WA-35PPowerCON/Battery-less abs.3rd axis: RCP5-RA4C-WA-35PPowerCON/Battery-less abs.4th axis: RCP5-RA4C-WA-35PPowerCON/Battery-less abs.	4	
RCP5-SA4C RCA2-TCA4NA RCD-RA1DA	1st axis: RCP5-SA4C-WA-35PPowerCON/Battery-less abs.2nd axis: RCP5-SA4C-WA-35PStepper motor/Battery-less abs.3rd axis: RCA2-TCA4NA-I-20AC servo motor/Simple abs.4th axis: RCD-RA1DA-I-3DBrush-less DC motor/Incremental	4	
RCP5-SA6 RCP5-RA4C RCA2-TCA4NA RCD-RA1DA	1st axis: RCP5-SA6C-WA-42PPowerCON/Battery-less abs.2nd axis: RCP5-RA4C-WA-35PStepper motor/Battery-less abs.3rd axis: RCP5-RA4C-WA-35PStepper motor/Battery-less abs.4th axis: RCA2-TCA4NA-I-20AC servo motor/Simple abs.5th axis: RCD-RA1DA-I-3DBrush-less DC motor/Incremental	5	
RCP5-RA4C RCA2-TCA4NA RCD-RA1DA	1st/2nd axes: RCP5-RA4C-WA-35P Stepper motor/Battery-less abs. 3rd/4th axes: RCA2-TCA4NA-I-20 AC servo motor/Incremental 5th/6th axes: RCD-RA1DA-I-3D Brush-less DC motor/Incremental	6	
RCP5-RA4C	1st~7th axes: RCP5-RA4C-WA-35P Stepper motor/Battery-less abs.	7	
RCP5-RA4C RCA2-TCA4NA RCD-RA1DA	1st/2nd axes: RCP5-RA4C-WA-35P Stepper motor/Battery-less abs. 3rd/4th axes: RCA2-TCA4NA-I-20 AC servo motor/Simple abs. 5th~8th axes: RCD-RA1DA-I-3D Brush-less DC motor/Incremental	8	

The table below shows driver board combination examples of MCON-C/CG.



			Note: RCD series does not support the simple absolute specification.	
Slot 0	Slot 1	Slot 2	Slot 3	Model Number
AXO	AX2	AX4	AX6	
PowerCON 42 Battery-less abs.	PowerCON 35 Battery-less abs.	Not in use (Available)	Not in use (Available)	Bottom connector Top connector Top connector Bottom connector
AX1	AX3	AX5	AX7	MCON-C-2-42PWAIT-N-35PWAIT-N-DV-0-0
Reserved by PowerCON (Unavailable)	Reserved by PowerCON (Unavailable)	Not in use (Available)	Not in use (Available)	
AX0	AX2	AX4	AX6	
Stepper motor 42□ Battery-less abs.	AC servo motor 30W Battery-less absolute	Not in use (Available)	Not in use (Available)	MCON-C-3-42PWAI-35PWAI-30WAI-N-DV-0-0
AX1	AX3	AX5	AX7	Slot 0 Slot 1
Stepper motor 35□ Battery-less abs.	Reserved by PowerCON (Unavailable)	Not in use (Available)	Not in use (Available)	
AX0	AX2	AX4	AX6	
PowerCON 35 Battery-less abs.	PowerCON 35 Battery-less abs.	PowerCON 35 Battery-less abs.	PowerCON 35 Battery-less abs.	MCON-C-4-35PWAIT-N-35PWAIT-N- Slot 0 Slot 1
AX1	AX3	AX5	AX7	35PWAIT-N-35PWAIT-N-DV-0-0
by PowerCON (Unavailable)	by PowerCON (Unavailable)	by PowerCON (Unavailable)	by PowerCON (Unavailable)	Slot 2 Slot 3
AX0	AX2	AX4	AX6	
PowerCON 35 Battery-less abs.	Stepper motor 35□ Battery-less abs.	AC servo motor 20W Simple absolute	Brush-less DC motor Incremental	MCON-C-4-35PWAIT-N-35PWAI-N- Slot 0 Slot 1
AX1	AX3	AX5	AX7	20SA-N-3DI-N-DV-0-0-ABB
Reserved by PowerCON (Unavailable)	Reserved by PowerCON (Unavailable)	Reserved by PowerCON (Unavailable)	Reserved by PowerCON (Unavailable)	Slot 2 Slot 3
AX0	AX2	AX4	AX6	
PowerCON 42 Battery-less abs.	Stepper motor 35□ Battery-less abs.	AC servo motor 20W Simple absolute	Brush-less DC motor Incremental	MCON-C-5-42PWAIT-N- Slot 0
AX1	AX3	AX5	AX7	35PWAI-35PWAI-20SA-N-3DI-N-DV-0-0-ABB
Reserved by PowerCON (Unavailable)	Stepper motor 35□ Battery-less abs.	Reserved by PowerCON (Unavailable)	Not in use (Available)	Slot 1 Slot 2 Slot 3
AX0	AX2	AX4	AX6	
Stepper motor 35□ Battery-less abs.	AC servo motor 20W Incremental	Brush-less DC motor Incremental	Not in use (Available)	MCON-C-6-35PWAI-35PWAI- Slot 0
AX1	AX3	AX5	AX7	20WAI-20WAI-3DI-3DI-DV-0-0
Stepper motor 35□ Battery-less abs.	AC servo motor 20W Incremental	Brush-less DC motor Incremental	Not in use (Available)	Slot 1 Slot 2
AX0	AX2	AX4	AX6	
Stepper motor 35□ Battery-less abs.	Stepper motor 35□ Battery-less abs.	Stepper motor 35□ Battery-less abs.	Stepper motor 35□ Battery-less abs.	MCON-C-7-35PWAI-35PWAI-35PWAI-35PWAI- Slot 0 Slot 1
AX1	AX3	AX5	AX7	35PWAI-35PWAI-35PWAI-N-DV-0-0
Stepper motor 35□ Battery-less abs.	Stepper motor 35□ Battery-less abs.	Stepper motor 35□ Battery-less abs.	by PowerCON (Unavailable)	Slot 2 Slot 3
AX0	AX2	AX4	AX6	
Stepper motor 35□ Battery-less abs.	AC servo motor 20W Simple absolute	Brush-less DC motor Incremental	Brush-less DC motor Incremental	MCON-C-8-35PWAI-35PWAI-20SA-20SA- Slot 0 Slot 1
AX1	AX3	AX5	AX7	3DI-3DI-3DI-3DI-DV-0-0-ABB
Stepper motor 35□ Battery-less abs.	AC servo motor 20W Simple absolute	Brush-less DC motor Incremental	Brush-less DC motor Incremental	Slot 2 Slot 3

Standard Price Table

Calculate the standard price of the MCON controller based on (1) base price by type as specified below, by adding (2) slot model price, (3) quantity of simple absolute, (4) quantity of batteries for simple absolute, and (5) I/O type.



+

(1)							
Base price by type							
Description Model Price Price							
Standard	MCON-C	-					
Safety category compliant type	MCON-CG	-					

(2)								
Slot model price (Add the total amount of slots to be used)								
	Details of slot Mc							
		Battery-less absolute/ Incremental (For PowerCON®)	□PWAIT-N	-				
	1 avis	Simple absolute (For PowerCON®)	□PSAT-N	-				
Stepper	T-dXIS	Battery-less absolute/ Incremental (For standard)	□PWAI-N	-				
motor		Simple absolute (For standard)	□PSA-N	-				
	2-axis	Simple absolute (For standard) + Simple absolute (For standard)	□PSA-□PSA	-				
		Battery-less abs./Incremental (For standard) + Battery-less abs./Incremental (For standard)	□PWAI-□PWAI	-				
	1-axis —	Battery-less absolute/ Incremental (For standard)	□WAI-N	-				
AC servo		Simple absolute (For standard)	□SA-N	-				
motor	2 avia	Battery-less abs./Incremental (For standard) + Battery-less abs./Incremental (For standard)	□WAI-□WAI	-				
	Z-dXIS	Simple absolute (For standard) + Simple absolute (For standard)	□SA-□SA	-				
Brush-less	1-axis	Incremental (For standard)	3DI-N	-				
DC motor	2-axis	Incremental (For standard) + Incremental (For standard)	3DI-3DI	-				

* \Box indicates the motor size.



*No need to add (3) and (4) for the battery-less absolute type.



(*) RCP4 is compatible with SA3/RA3/GR
. RCP2CR and RCP2W are compatible with GR
./RT
.

Fieldbus Control Operation Modes

The MCON fieldbus control operation mode can be set from the following control modes. Data required for operation (target position, speed, acceleration, push current value, etc.) are written by a PLC or other host controller into the specified addresses.

Operation mode	Description	Overview
Positioner 1/ Simple direct numerical value mode (Simple direct mode)	Positioner 1 mode can store up to 256 points of position data, and can move to the stored position. Both modes allow monitoring the current position numerically with 0.01mm increments. The simple direct numerical value mode can modify any of the stored target positions by numerical value. Both modes allow monitoring the current position numerically with 0.01mm increments.	PLC Target position number Control signal Current position Completed position number Status signal Communication Via fieldbus
Direct numerical control mode	This mode allows designating the target position, speed, acceleration/deceleration, and motor current percentage for pushing numerically. Also, it is capable of monitoring the current position, current speed, and the motor current command value with 0.01mm increments.	PLC Target position Positioning band Speed, acceleration/deceleration Pushing percentage Control signal Current position Motor current (command value) Current speed (command value) Alarm code Status signal
Positioner 2 mode	Positioner 2 mode can store up to 256 points of position data, and can move to the stored position. This mode does not allow monitoring of the current position. This is a mode that has less in/out data transfer volume than the Positioner 1 mode.	PLC Target position number Control signal Completed position number Status signal Communication Ua fieldbus
Positioner 3 mode	Positioner 3 mode can store up to 256 points of position data, and can move to the stored position. This mode does not allow monitoring of the current position. This is a mode that has less in/out data transfer volume than the Positioner 2 mode, and operates with a minimum number of signals.	PLC Target position number Control signal Completed position number Status signal Communication via fieldbus
Positioner 5 mode	Positioner 5 mode can store up to 16 points of position data, and can move to the stored position. This is a mode that has less in/out data transfer volume than the Positioner 2 mode, and allows monitoring the current position numerically with 0.1mm increments.	PLC Target position number Control signal Current position Completed position number Status signal Communication Via fieldbus
Remote I/O mode	It is an operation mode that's controlled by the ON/OFF of the digital I/Os similar to the PIO ribbon cable. There are 5 control modes available (See P.11). *Different PIO patterns can be set in the parameters.	PLC Target position number Completed position number Status signal Communication

* Only the positioner 3 mode and remote I/O mode can be selected for the CompoNet.

* Please note that if the remote I/O mode is selected, all axes will be in the remote I/O mode.

List of Functions by Operation Mode

	Simple direct value mode	Positioner 1 mode	Direct numerical control mode	Positioner 2 mode	Positioner 3 mode	Positioner 5 mode
Number of positioning points	256 points	256 points	Unlimited	256 points	256 points	16 points
Home return operation	0	0	0	0	0	0
Positioning operation	0	Δ	0	Δ	Δ	Δ
Speed, acceleration/ deceleration settings	Δ	Δ	0	Δ	Δ	Δ
Different acceleration and deceleration settings	Δ	Δ	×	Δ	Δ	Δ
Pitch feed (Incremental)	Δ	Δ	0	Δ	×	Δ
Push-motion operation	Δ	Δ	0	Δ	Δ	Δ
Speed changes while moving	Δ	Δ	0	Δ	Δ	Δ
Pausing	0	0	0	0	0	0
Zone signal output	Δ	Δ	Δ	Δ	Δ	Δ
Position zone signal output	Δ	Δ	×	Δ	×	×
Vibration control (Note 1)	Δ	Δ	×	Δ	Δ	Δ
Current position reading (Resolution)	O (0.01mm)	O (0.01mm)	(0.01mm)	×	×	(0.1mm)

* \bigcirc : Direct setting is possible, \triangle : Position data or parameter input is required, x: The operation is not supported.

(Note 1) This function is limited to the AC servo motor specification.

Functions of	Remote I/O mode							
ROBO Cylinder®	Positioning mode	Teaching mode	256-point mode	Solenoid valve mode 1	Solenoid valve mode 2			
Number of positioning points	64 points	64 points	256 points	7 points	3 points			
Home return operation	0	0	0	0	× (Note 2)			
Positioning operation	0	0	0	0	0			
Speed, acceleration/ deceleration settings	0	0	0	0	0			
Different acceleration and deceleration settings	0	0	0	0	0			
Pitch feed (Incremental)	0	0	0	0	×			
Push-motion operation	0	0	0	0	×			
Speed changes while moving	0	0	0	0	0			
Pausing	0	0	0	0	○ (Note 3)			
Zone signal output	0	○ (Note 4)	○ (Note 4)	0	0			
Position zone signal output	\odot (Note 4)	\odot (Note 4)	\odot (Note 4)	○ (Note 4)	○ (Note 4)			
Vibration control (Note 1)	0	0	0	0	0			
Current position reading	×	×	×	×	×			

* \bigcirc : Direct setting is possible, \triangle : Position data or parameter input is required, x: The operation is not supported.

(Note 1) This function is limited to the AC servo motor specification.

(Note 2) It returns to home position with the first movement command.

(Note 3) It's possible when the movement command type of the parameter No.27 is set to 0.

(Note 4) Select either the zone signal output or position zone signal output with parameter No.149.

I/O Signal Function Details

The following table shows functions assigned to the controller I/O.

Set to the remote I/O mode and select the PIO patterns from 0-5.

The controller can be operated by turning each port number ON/OFF via the network.

		Setting of the parameter No.25 of MCON										
Positioning mode		Teaching mode		256-point mode		Solenoid valve mode 1		Solenoid valve mode 2				
	0		1		2		4		5			
Category	Port number	Code	Signal name	Code	Signal name	Code	Signal name	Code	Signal name	Code	Signal name	
PLC output	0	PC1	Command	PC1	_ _ Command	PC1	-	ST0	Start position 0	ST0	Start position 0	
	1	PC2		PC2		PC2		ST1	Start position 1	ST1	Start position 1	
	2	PC4		PC4		PC4		ST2	Start position 2	ST2	Start position 2	
	3	PC8	position number	PC8	position number	PC8	Comment	ST3	Start position 3	-	Cannot be used	
	4	PC16		PC16		PC16	position number	ST4	Start position 4	-		
	5	PC32		PC32		PC32	-	ST5	Start position 5	-		
	6	-	Cannot be used	MODE	Teaching mode command	PC64		ST6	Start position 6	-		
	7	-		JISL	Jog/Inching switching	PC128		-	Cannot be used	-		
Ţ	8	-		JOG+	+Jog	-	Cannot be used	-		-		
MCON	9	BKRL	Forced brake release	JOG-	-Jog	BKRL	Forced brake release	BKRL	Forced brake release	BKRL	Forced brake release	
input	10	-	Cannot be used	-	Cannot be used	-	Cannot be used	-	Cannot be used	-	- Cannot be used	
	11	HOME	Home return	HOME	Home return	HOME	Home return	HOME	Home return	-		
	12	[#] STP	Pausing	[#] STP	Pausing	[#] STP	Pausing	[#] STP	Pausing	-		
	13	CSTR	Positioning start	CSTR/ PWRT	Positioning start/ Position data capture command	CSTR	Positioning start	-	Cannot be used	-		
	14	RES	Reset	RES	Reset	RES	Reset	RES	Reset	RES	Reset	
	15	SON	Servo ON command	SON	Servo ON command	SON	Servo ON command	SON	Servo ON command	SON	Servo ON command	
	0	PM1	Completed	PM1	Completed position number	PM1	PM1 PM2 PM4 PM8 Completed position number PM32 PM32 PM64 PM64 PM16 PM32 PM64 PM16 PM16 PM16 PM16 PM16 PM16 PM16 PM16	PE0	Position complete 0	LS0	Backward end movement command 0	
	1	PM2		PM2		PM2		PE1	Position complete 1	LS1	Backward end movement command 1	
	2	PM4		PM4		PM4		PE2	Position complete 2	LS2	Backward end movement command 2	
	3	PM8		PM8		PM8		PE3	Position complete 3	-	Cannot be used	
	4	PM16		PM16		PM16		PE4	Position complete 4	-		
	5	PM32		PM32		PM32		PE5	Position complete 5	-		
	6	MOVE	Moving signal	MOVE	Moving signal	PM64		PE6 Position	Position complete 6	-		
MCON	7	ZONE1	Zone 1	MODES	Teaching mode signal	PM128		ZONE1	Zone 1	ZONE1	Zone 1	
output	8 (Note 1)	PZONE/ ZONE2	Position zone/ Zone 2	PZONE/ ZONE1	Position zone/ Zone 1	PZONE/ ZONE1	Position zone/ Zone 1	PZONE/ ZONE2	Position zone/ Zone 2	PZONE/ ZONE2	Position zone/ Zone 2	
	9	-	Cannot be used	-	Cannot be used	-	Cannot be used	-	Cannot be used	-	Cannot be used	
	10	HEND	Home return complete	HEND	Home return complete	HEND	Home return complete	HEND	Home return complete	HEND	Home return complete	
	11	PEND	Positioning complete signal	PEND/ WEND	Positioning complete signal/ Position data capture completed	PEND	Positioning complete signal	PEND	Positioning complete signal	-	Cannot be used	
	12	SV	Operation ready	SV	Operation ready	SV	Operation ready	SV	Operation ready	SV	Operation ready	
	13	[#] EMGS	Emergency stop	[#] EMGS	Emergency stop	[#] EMGS	Emergency stop	[#] EMGS	Emergency stop	[#] EMGS	Emergency stop	
	14	[#] ALM	Alarm	[#] ALM	Alarm	[#] ALM	Alarm	[#] ALM	Alarm	[#] ALM	Alarm	
	15	LOAD/ TRQS/ [#] ALML	Torque detection(Note 2)/ Minor failure output	[#] ALML	Minor failure output	LOAD/ TRQS/ [#] ALML	Torque detection(Note 2)/ Minor failure output	LOAD/ TRQS/ [#] ALML	Torque detection(Note 2)/ Minor failure output	[#] ALML	Minor failure output	

(Note 1) Can be switched by Parameter No. 149 "Zone output switching".

(Note 2) When the driver for stepper motor is selected, it can be switched by the Parameter No. 156 "Torque detection/Minor failure output".

Minor fault output is used for the AC servo motor driver / DC brushless motor driver.

* In the table above, the # symbol accompanying each code indicates a negative logic signal.

* PIO pattern 3 is not available.

General Specifications

Specification	Description								
Number of controlled axes	8 axes max.								
Controller/Motor input power supply voltage	24VDC ± 10%								
Brake release power consumption current	0.15A × number of axes								
Control power consumption current	1.0A								
Control power inrush current (Note 1)	5A max., 30ms or less								
			Dations	Maximum					
	Actuator type				Rating	Energy saver	Standard/ Hi-accel./decel.		
	Stepper motor (Note 2)	RCP2		20P~28P			2.0A		
		RCP3		28SP~56P			2.0A		
		RCP4 RCP5	28D~56D	High-output disabled			2.2A		
			201~201	High-output enabled (Note 3)	3.5A		4.2A		
Motor consumption current		2W			0.8A		4.6A		
Motor consumption current		5W			1.0A		6.4A		
		10W (RCL)			1.3A		6.4A		
	AC servo motor (Note 2)	10W (RCA/RCA2)			1.3A	2.5A	4.4A		
	(20W			1.3A	2.5A	4.4A		
		20W (20S type)			1.7A	3.4A	5.1A		
		30W		1.3A	2.2A	4.4A			
	Brush-less DC motor 3W			0.7A		1.5A			
Motor power inrush current (Note 1)	lote 1) Slot numbers × 10A max., 5ms or less								
Motor-encoder cable length	20m max. *When the simple absolute is selected, 10m will be the maximum length.								
Serial communication (SIO port: teaching only)	RS485: 1ch (Modbus protocol) Speed: 9.6~230.4kbps								
External interface	DeviceNet, CC-Link, PROFIBUS-DP, CompoNet, EtherCAT, EtherNet/IP, PROFINET IO								
Data setting, input method	PC compatible software, touch panel teaching pendant, gateway parameter setting to				ig tool				
Data retention memory	Position data and parameters are saved in non-volatile memory. (No limit to rewrite)								
Number of positioning points	256 points (Unlimited for simple numerical control and direct numerical control) (*) The number of positioning points vary depending on the motion mode selection set by the parameter								
LED display (installed on the front panel)	Status LED for driver: 8 LEDs (for each driver board) Status LED for fieldbus: 7 LEDs								
Electromagnetic brake force release	Enable to force-release by transmitting a deactivation signal to each axis (24VDC input).								
Protection function (Note 4)	Overcurrent protection (each slot has its own solid-state motor cut-off circuit built-in)								
Electric shock protection mechanism	Class I, basic insulation								
Insulation resistance	500VDC 10MΩ								
Weight	620/ 690g when the simple absolute spec. is selected /Additional 1,950g when used with the absolute batter			ttery box (8-axis spec.)					
Cooling method	Forced air cooling								
External dimensions	123W × 115H × 95D								
Ambient operating temp. & humidity	0~40°C, 85% RH or less (Non-condensing)								
Vibration resistance	Frequency: 10~57Hz/Amplitude: 0.075mm, Frequency: 57~150Hz/Acceleration: 9.8m/s ² XYZ directions, Sweep time: 10 minutes, Number of sweeps:10 times								
Impact resistance	Drop height: 800mm 1 corner, 3 edges, 6 faces								
Degree of protection	IP20			-					

(Note 1) Please note that the inrush current value varies depending on the impedance of the power line.

(Note 2) The current will be highest in the exciting phase detection performed in the first servo ON process after the power is turned on. (Stepper motor: 100ms (normal)/AC servo motor: approx. 1~2 seconds (normal), up to 10 seconds)
 (Note 3) The driver board of high-output configuration specification can be used to control one axis per slot.
 (Note 4) The AC servo motor will function if the load current reaches equal to or greater than 1.4 times the maximum value.



Status display LEDs for controller and fieldbus.

13 Fieldbus connector

Equipped with a connector for connecting various fieldbus.

14 ~ 17 Motor-encoder connectors for actuator connections Connect motor-encoder cables for actuators.

External Dimensions





Options

Teaching pendant

A teaching device equipped with functions such as position teaching, trial operation, and monitoring. Features

Model TB-01-C

Configuration





Configuration

Specificatio	ns
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Rated voltage	24VDC			
Power consumption	3.6W or less (150mA or less)			
Ambient operating temperature	0~50°C			
Ambient operating humidity	20~85% RH (Non-condensing)			
Environmental resistance	IP40 (Initial state)			
Weight	507g (TB-01 unit only)			

PC compatible software (Windows only) * The PC compatible software is required for the MCON.

The start-up support software which comes equipped with functions such as position teaching, Features trial operation, and monitoring. Compatible with Windows XP SP2 or later/Vista/7/8





communication cable:

CB-RCA-SIO050



External regeneration resistor

USB cable:

CB-SEL-USB030

Overview

As the motor reduces its speed, the resistor will convert dissipated regenerative current into heat. Since the MCON controller has a built-in regeneration resistor, this can be used for normal operations. However, an external resistor can be installed should the capacity of the internal resistor be insufficient.

Model RER-1

PC compatible software (CD)



Absolute battery box

Overview

If the simple absolute specification is selected with code ABB, the absolute battery box is included with the controller. However, if the battery box is ordered as a separate unit, it does not include the battery but just the box itself. If the battery is needed, please purchase it separately. (Model: AB-7).

Model MSEP-ABB

(Battery sold separately)

External Dimensions See P.15

* Cable that connects the absolute battery box and MCON (Cable Model: CB-MSEP-AB005) comes with the absolute battery box

Dummy plug

- Overview
- It is required for the safety category compliant type (CG).





Driver board

Overview

The driver board can be supplemented or exchanged in the MCON controller. When just the actuator operated needs to be modified, this can be done by simply replacing the driver board instead of the entire controller. (The parameters will need to be adjusted when the driver board is replaced)

Model

Motor type	High output type	Encoder type	Number of axes	Model number	
	High- output setting	Battery-less absolute/ Incremental	1	MCON-PPD1-W	
	enabled	Simple absolute	1	MCON-PPD1-A	
Stepper motor	High- output Setting disabled	Battery-less absolute/	1	MCON-PD1-W	
		Incremental	2	MCON-PD2-W	
		Simple absolute	1	MCON-PD1-A	
		Simple absolute	2	MCON-PD2-A	
		Battery-less absolute/	1	MCON-AD1-W	
AC servo		Incremental	2	MCON-AD2-W	
motor	-		1	MCON-AD1-A	
		Simple absolute	2	MCON-AD2-A	
Brush-less		Incromontal	1	MCON-DD1-I	
DC motor	-	Incremental	2	MCON-DD2-I	

Replacement battery

- Overview
- Replacement battery used with the absolute battery box.
- Model AB-7



Replacement fan unit

Model MSEP-FU





For RCP2-RTBS/RTBSL/RTCS/RTCSL Model Number CB-RPSEP-MPA Only robot cable is available for this model. Robot cable









* Please indicate the cable length (L) in $\Box \Box \Box$, maximum 20m, E.g.) 080 = 8m



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Catalog No. CE0233-1A (0916)

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