



Controllers for Stepping Motors

Introduction	Motor & Driver Packages										2-Phase Stepping Motors without Encoder	2-Phase Stepping Motors with Encoder	Driver with Indexer	Controllers		Low-Speed Synchronous Motors	Accessories	Before Using a Stepping Motor
	AS	AS PLUS	ASC	RK	CRK II	CSK	PMC	UMK	CSK	PK/PV				PK	UI2120G			
	Closed Loop <i>Q57ZP</i>	5-Phase Microstep	5-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half							
	AC Input	DC Input	AC Input	AC Input	DC Input	DC Input	AC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input

Additional Information	
Technical Reference	F-1
General Information	G-1

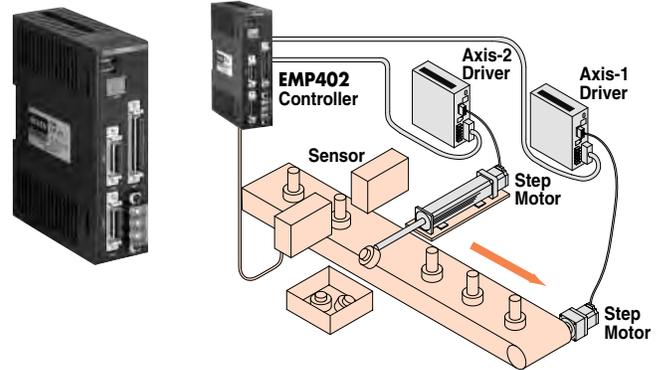
EMP400 Series	C-254
SG8030J	C-266

Controllers for Stepping Motors

EMP400 Series

Page C-254

- Coordinated 2-axis moves via linear interpolation operation
- Step pulse rate up to 200 kHz
- General I/O: 8 inputs and 6 outputs
- Optional **OP300** operator interface unit available
- Ability to change velocity "on the fly"
- Also available as a single axis controller



SG8030J

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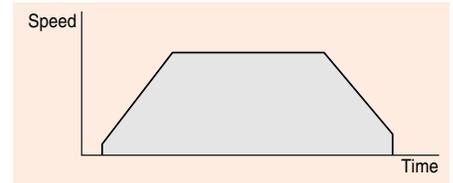
- Compact and simple controller
- Sequence control of four positioning operations
- Selective control of four positions
- Select operating modes using a programmable controller
- Step pulse rate up to 200 kHz



DIN Rail-Mount Model
SG8030J-D



Panel-Mount Model
SG8030J-U



Programmable Motion Controller EMP400 Series

The **EMP400** Series controllers allow easy programming using simple commands. The dual axis model provides coordinated moves via linear interpolation.

Various motion profiles can be achieved by using up to 32 sequence programs. 1 program can be dedicated as a STARTUP program.

Features

Pulse Oscillation

Various operation commands are provided for positioning operation, return-to-home operation and dual axis linear interpolation functions. The operator only needs to set the parameters.

Sequence Function

A series of operation patterns can be programmed using dedicated commands. This is an ideal function for distributed system control.

I/O Control

General-purpose I/O signals are provided in addition to dedicated I/Os such as pulse output and limit-sensor input. Synchronization with peripherals is also possible.

Function

Pulse Oscillation

● Fast Response Time

The time between a START signal input and a pulse output is 2 ms or less.

● High-Speed Positioning & Low Vibration

The jerk-limit control function allows you to set a shorter acceleration/deceleration time compared with the use of linear acceleration/deceleration patterns. This reduces the overall positioning time.

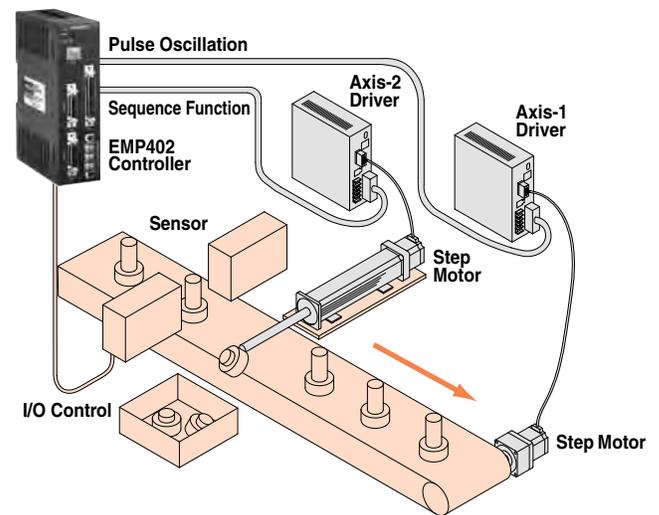
What is jerk-limit control?

This term refers to the acceleration/deceleration patterns used to ensure the smoothness of speed change at the start of operation or when the machine enters a constant-speed mode from an acceleration mode. Since speed change becomes more smooth, vibration is reduced.

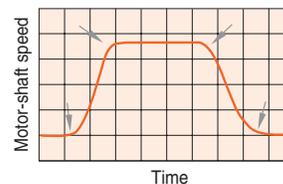


Single axis model: **EMP401**

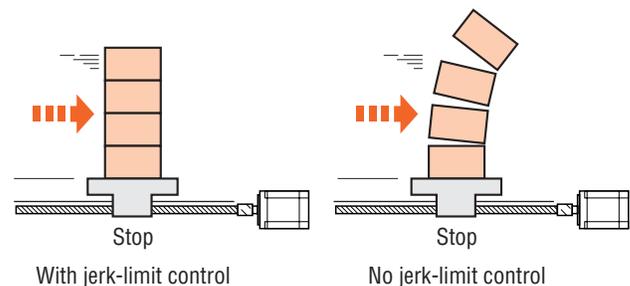
Dual axis model: **EMP402**



Motor Velocity Profile



Effect of Type on Positioning Time

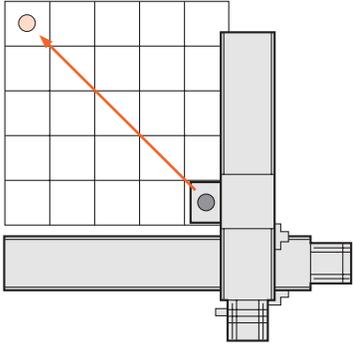


● Positioning Operation

Supports both incremental mode (travel amount) and absolute mode (absolute-position).

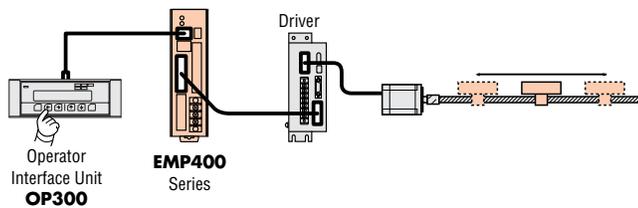
● Linear Interpolation Operation

Two axes are controlled simultaneously, allowing direct movement to a target position.



● Teaching Function

The amount of travel can be changed by jogging the load into position via the **OP300** interface.

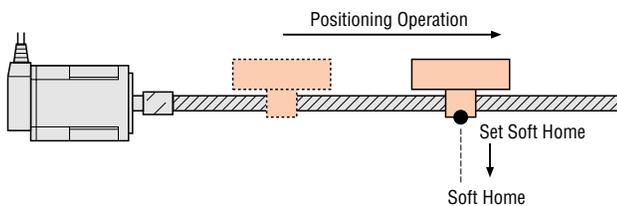


● Continuous Operation

Pulse output continues until a specified input is received or a specified time is reached.

● Set Soft Home (Clears the current position)

The controller has an internal position counter. "0" position in this counter is soft home. The ability to set a voluntary position to soft home is available using RTNCR command.



● Homing

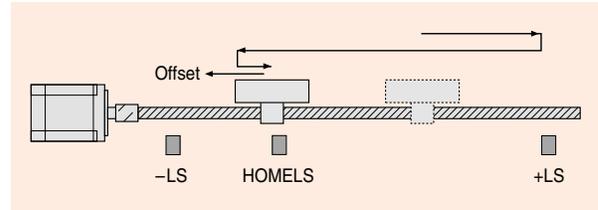
Ability to seek for a sensor representing a positioning reference point (home) is available.

Also available is the ability to set an offset from the home position.

High-speed return (three-sensor mode)

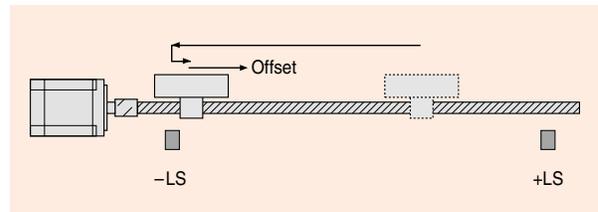
Using a predetermined sequence, the mechanical unit returns home at high speed from any position with three sensors monitoring the current position.

Since it's possible to specify the direction in which the home sensor is entered, backlash error doesn't occur in applications where positioning accuracy is critical.



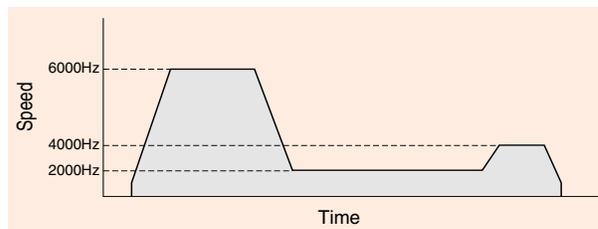
Constant-speed return (two-sensor mode)

The mechanical unit returns home at a constant speed. This mode is effective when a compact slider is operated, since the stroke can be fully utilized.



● Speed Change on the Fly

Speed can be changed on the fly during continuous operation.

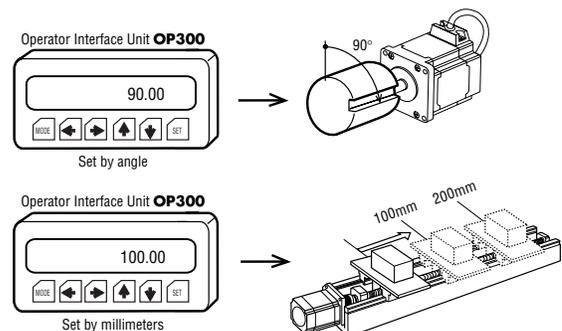


● A Choice of Acceleration/Deceleration Patterns

Each operation can be programmed using linear patterns or jerk-limit control.

● Distance Options

Set travel amount using various scaling units such as pulses, millimeters, or degrees.



Introduction

AS

AS PLUS

ASC

ASC

RK

RK

CRK II

CRK II

CSK

CSK

PMC

PMC

UMK

UMK

CSK

CSK

PK/PV

PK

Motor & Driver Packages

2-Phase Stepping Motors

Controllers

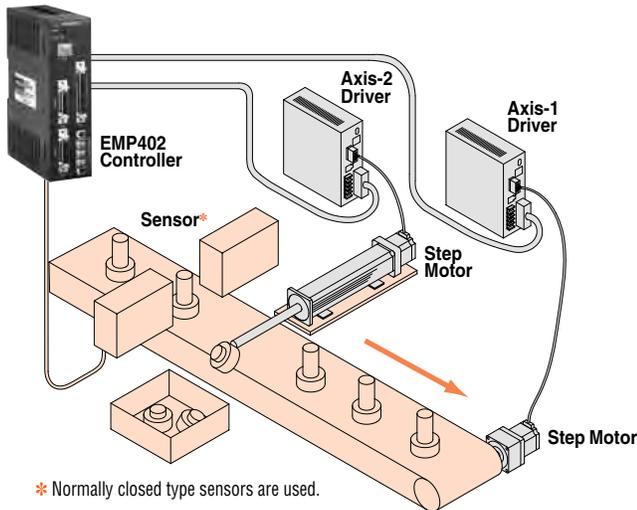
Low-Speed Synchronous Motors

Accessories

Before Using a Stepping Motor

Sequence Function

Connect a motor for transferring products to axis 1, another motor for ejecting nonconforming products to axis 2, and a sensor for detecting the height of transferred products to one of the general-purpose inputs.



* Normally closed type sensors are used.

Application Description

- ① Transfer products via an index move of 30,000 pulses (axis 1).
- ② Detect the height of the product using the sensor (general-purpose input 1).
- ③ Return to ① if the detection result is acceptable.
- ④ If the detection result is not acceptable, perform an index move of 30,000 pulses and eject the nonconforming product (axis 2). Return to ② and perform acceptability judgment for the next product.

Sample Code for Application Example

```
[ 1] V1 10000 ; Axis 1 (transfer)      Operating speed 10 kHz
[ 2] D1 +30000 ; Axis 1 (transfer)     Travel amount 30,000 pulses
①→ [ 3] INC1   ; Axis 1 (transfer)     Incremental positioning operation
[ 4] DELAY 0.5 ; Wait for 0.5 sec.
②③→ [ 5] CJMP 1,0,3 ; Acceptability judgment (general-purpose input 1 = sensor)
; OFF = Go to step [3] if OK
; ON = Go to next step if NG
④→ [ 6] INC1   ; Axis 1 (transfer)     Incremental positioning operation
[ 7] DELAY 0.5 ; Wait for 0.5 sec.
[ 8] V2 5000   ; Axis 2 (ejection)      Operating speed 5,000 Hz
[ 9] D2 +1000  ; Axis 2 (ejection)      Travel amount 1,000 pulses
[10] ABS2     ; Axis 2 (ejection)      Absolute positioning operation
[11] D2 0     ; Axis 2 (ejection)      Travel amount 0 pulse
[12] ABS2     ; Axis 2 (ejection)      Absolute positioning operation
[13] JMP 5    ; Jump to step [5]
```

I/O Control

In addition to the signals for controlling the **EMP400** series (e.g., start, emergency stop, ready), a full range of other signals are available, including those necessary for motor control (e.g., pulse, alarm, limit sensor, home sensor) and general-purpose I/Os.

Control I/O (Dedicated)

START Input
E-STOP Input
READY Output
MOVE Output
END Output
etc.

Motor Control I/O (Dedicated)

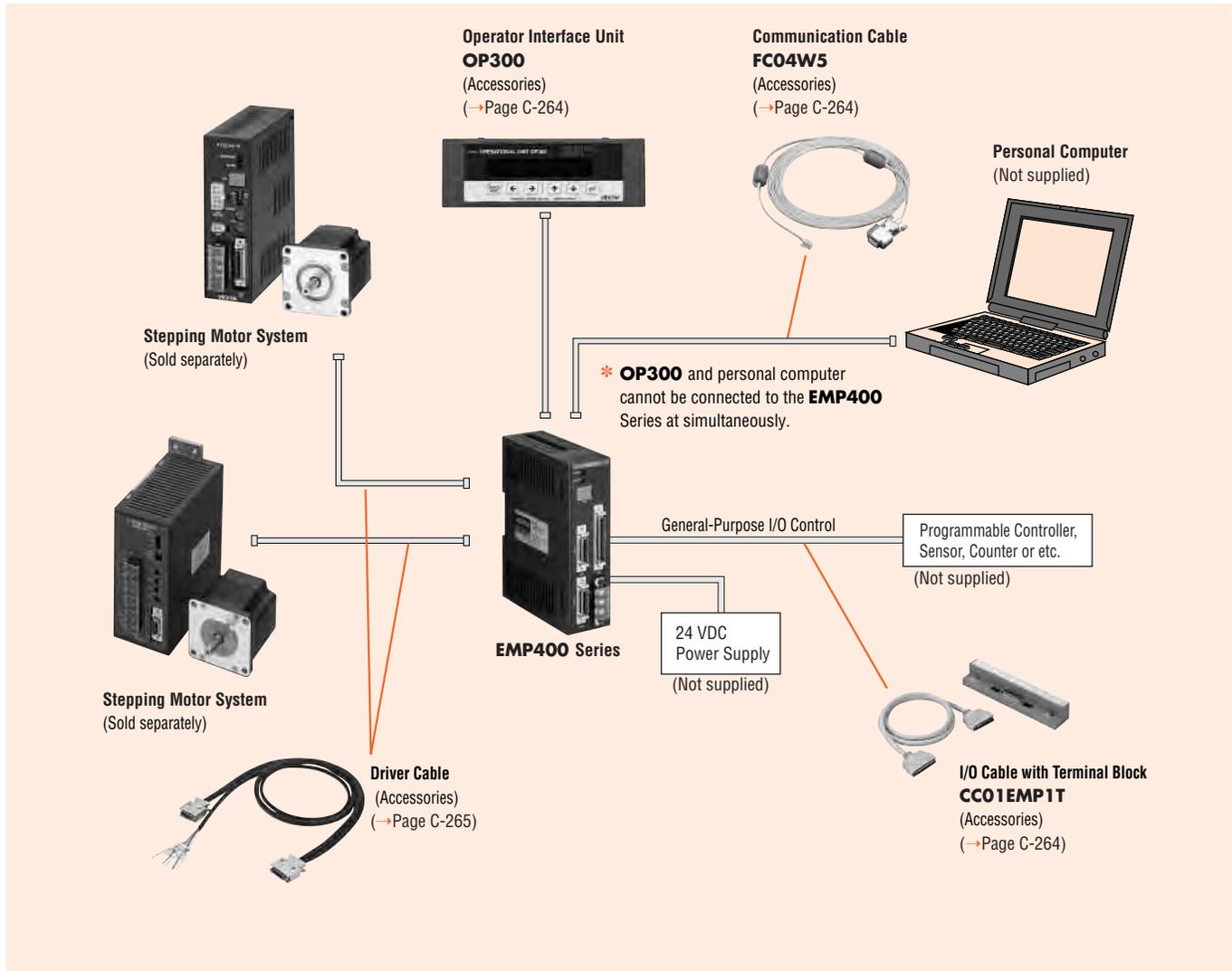
PULSE Output
DIRECTION Output
CCR Output
ALARM Input
END Input
TIMING Input
HOMELS Input
SLIT Input
etc.

General Purpose I/O

8 inputs
6 outputs

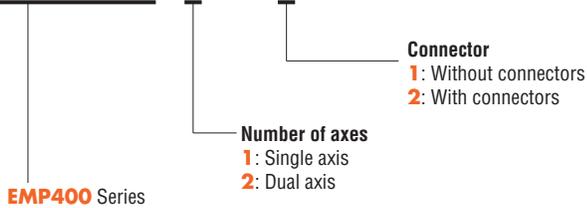
These signals can be easily controlled using conditional branching and timer processing.

System Configuration



Product Number Code

EMP40 1 - 1



Product Line

Type	Number of Axes	Connector
EMP401-1	Single axis	Without connectors
EMP401-2		With connectors
EMP402-1	Dual axis	Without connectors
EMP402-2		With connectors

Introduction

AS

AS PLUS

ASC

Motor & Driver Packages

2-Phase Stepping Motors

Controllers

Low-Speed Synchronous Motors

Accessories

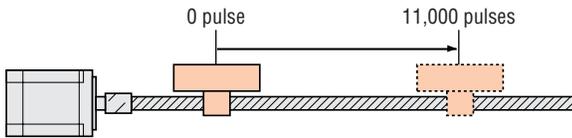
Before Using a Stepping Motor

Command List

Command	Description	
Motor control	ABS	Perform the positioning operation with the absolute position specified.
	INC	Perform the positioning operation with the relative position specified.
	MHOME	Perform the return to mechanical home operation.
	SCAN	Perform continuous operation.
	RESET	Reset the software.
	RTNCR	Set the current position to 0 (clear).
	RUN	Execute the sequence program.
	S	Decelerate the motor to a stop.
Data setting	D	Set the travel amount and positioning data.
	DOWEL	Set the operating intervals (dwell time).
	H	Set the direction of rotation.
	OFS	Set the offset travel amount.
	RAMP	Set the acceleration/deceleration pattern and jerk limit time.
	T	Set the acceleration/deceleration rate.
	V	Set the operating speed.
Program control	VS	Set the starting speed.
	CJMP	Jump to a specified step when a given condition is satisfied.
	JMP	Jump to a specified step.
	DELAY	Set the delay time.
	MU	Set parallel processing.
	LOOP	Set the loop.
	ENDL	End the loop section.
	END	End the sequence program.
Hardware setting	IN	Wait for input.
	OUT	Control the general-purpose output.
	ACTL	Switch the logic setting for the sensor and alarm.
	EEN	Set the use of END input.
	ETIME	Set the END output time.
	ID	Perform the initial setting for a linear motion product.
	PULSE	Set the pulse-output mode.
	SEN	Set the home-detection mode.
Others	TIM	Set the use of TIM input and SLIT input.
	UNIT	Set the unit for travel amount.
	EDIT	Edit the sequence program.
	DEL	Delete the sequence program.
	DWNLD	Download the sequence program.
	UPLD	Upload the sequence program.
	R	Check the system conditions.

Sample Programs

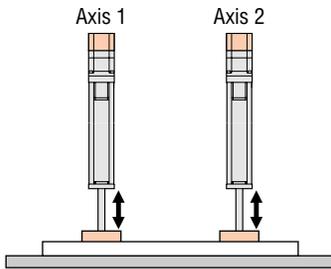
Sample. 1 Positioning operation



[1] VS1 500 ; Starting speed 500 Hz
 [2] V1 1000 ; Operating speed 1,000 Hz
 [3] T1 30.0 ; Acceleration/deceleration rate 30.0 ms/kHz
 [4] D1 +11000 ; Travel amount 11,000 pulses
 [5] INC1 ; Execute relative positioning operation

Sample. 2 Inputting multiple operation patterns

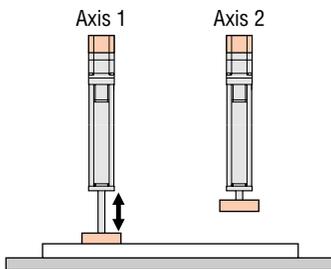
Simultaneous positioning of two axes



Seq 99 ; Hardware Setting
 [1] UNIT1 0.02,1 ; Axis 1 Change to travel amount mm
 [2] UNIT2 0.02,1 ; Axis 2 Change to travel amount mm

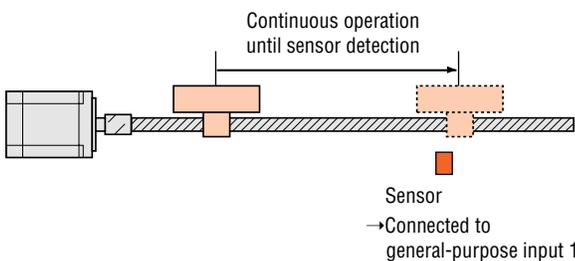
Seq 1 ; 2 axis execute at same time
 [1] V1 1000 ; Axis 1 Operating speed 1,000 Hz
 [2] D1 +50 ; Axis 1 Travel amount 50 mm
 [3] D2 +50 ; Axis 2 Travel amount 50 mm
 [4] ABS0 ; Axes 1, 2 Execute absolute positioning operation
 [5] DELAY 1.0 ; Pause at 1-second internal timer
 [6] D1 0 ; Axis 1 Travel amount 0 mm
 [7] D2 0 ; Axis 2 Travel amount 0 mm
 [8] ABS0 ; Axes 1, 2 Execute absolute positioning operation

Axis 2 moves after axis 1 moves.



Seq 2 ; After axis 1 executes, axis 2 executes
 [1] V1 1000 ; Axis 1 Operating speed 1,000 Hz
 [2] D1 +50 ; Axis 1 Travel amount 50 mm
 [3] ABS1 ; Axis 1 Execute absolute positioning operation
 [4] D1 0 ; Axis 1 Travel amount 0 mm
 [5] ABS1 ; Axis 1 Execute absolute positioning operation
 [6] V2 2000 ; Axis 2 Operating speed 2,000 Hz
 [7] D2 +50 ; Axis 2 Travel amount 50 mm
 [8] ABS2 ; Axis 2 Execute absolute positioning operation
 [9] D2 0 ; Axis 2 Travel amount 0 mm
 [10] ABS2 ; Axis 2 Execute absolute positioning operation

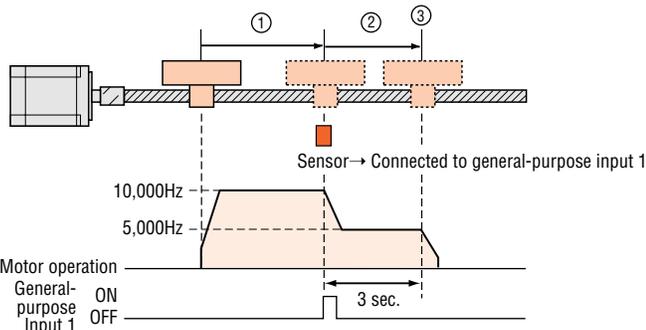
Sample. 3 Positioning using a sensor



[1] VS1 500 ; Starting speed 500 Hz
 [2] V1 20000 ; Operating speed 20,000 Hz
 [3] T1 30.0 ; Acceleration/deceleration rate 30.0 ms/kHz
 [4] H1 + ; Direction of rotation + (CW direction)
 [5] SCAN1 ; Start continuous operation
 [6] IN 1,1 ; General-purpose input 1 Waiting for ON
 [7] S1 ; Decelerate to a stop

Sample. 4 Multistep speed-change operation

- ① Continuous operation at 10,000 Hz
- ② Decelerate to 5,000 Hz upon sensor detection
- ③ Decelerate to a stop after three seconds



[1] VS1 500 ; Starting speed 500 Hz
 [2] V1 10000 ; Operating speed 10,000 Hz
 [3] T1 30.0 ; Acceleration/deceleration rate 30.0 ms/kHz
 [4] H1 + ; Direction of rotation + (CW direction)
 [5] SCAN1 ; Start continuous operation
 [6] IN 1,1 ; General-purpose input 1 Waiting for ON
 [7] V1 5000 ; Decelerate to 5,000 Hz
 [8] DELAY 3.0 ; Wait time 3 seconds
 [9] S1 ; Decelerate to a stop

Introduction

AS

AS PLUS

ASC

Specifications

Program	Number of programs	32			
	Capacity	1,000 commands			
	Input method	Command input via terminal program			
Oscillator Specifications	Number of control axes	EMP401 : Single axis - EMP402 : Dual axis			
	Pulse output mode	1- or 2-pulse output mode			
	Frequency	10 to 200 kHz (1-Hz increment) Pulse duty 50% (Fixed)			
	Acceleration/deceleration rate	0.5 to 1,000 ms/kHz (0.1 - ms/kHz increments)			
	Acceleration/deceleration pattern	Linear/jerk-limit control			
	Travel amount	Incremental: -16,777,215~+16,777,215 pulse Absolute: -8,388,608~+8,388,607 pulse			
Operation Pattern		Incremental Operation	Absolute Operation	Mechanical Home Seeking	Continuous Operation
	Linear acceleration/deceleration	✓	✓	✓	✓
	Jerk-limit control	✓	✓	✓	✓
	Dual axis linear interpolation operation	✓	✓	×	×
	Speed change on the fly	×	×	×	✓
Communication Specifications	Communication method	RS-232C based (3-wire)			
	Parameters	Baud rate fixed at 9,600, 8 data bits, 1 stop bit, no parity			
Input/Output Signal Specifications	Inputs (START, E-STOP, S-STOP)	3 photocoupler inputs 24 VDC, Input resistance 5.4 k Ω			
	Outputs (MOVE, ALM, READY, END)	4 open-collector outputs 24 VDC, 25 mA Max. each			
	General-purpose inputs	8 photocoupler inputs 24 VDC, Input resistance 5.4 k Ω			
	General-purpose outputs	6 open-collector outputs 24 VDC, 25 mA Max. each			
	Driver and sensor inputs	7 (EMP401) / 14 (EMP402) photocoupler inputs 12 VDC, input resistance 2.7 k Ω			
	Driver outputs	3 (EMP401) / 6 (EMP402) open-collector outputs 12 VDC, 20 mA Max. each			
General Specifications	Power requirement	24 VDC \pm 5%, Current Consumption 0.45 A			
	Dimensions	W 1.57 in. (40 mm) \times H 5.31 in. (135 mm) \times D 3.94 in. (100 mm)			
	Weight	0.57 lb. (0.26 kg)			
	Ambient temperature	32°F~122°F (0°C~+50°C) (nonfreezing)			
	Ambient humidity	20% ~ 85% (noncondensing)			

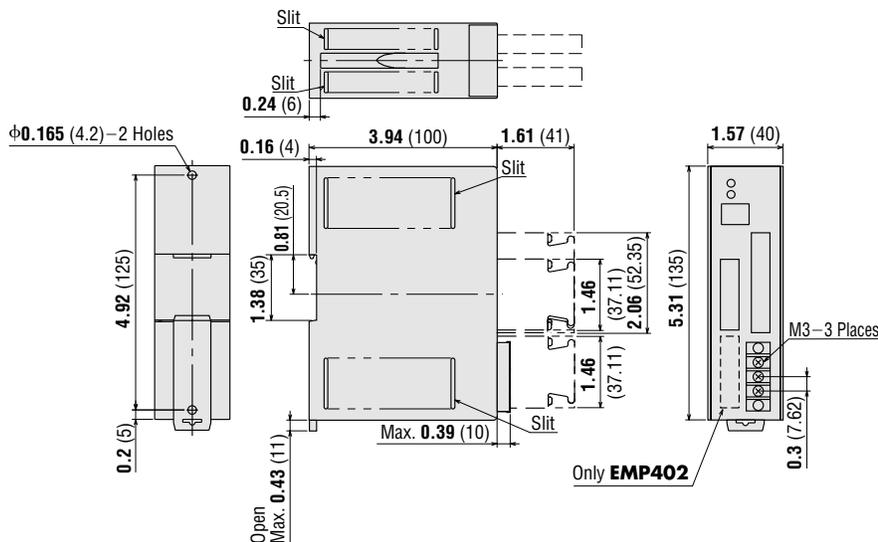
✓ : Available × : Not Available

Dimensions

Scale 1/4, Unit = inch (mm)

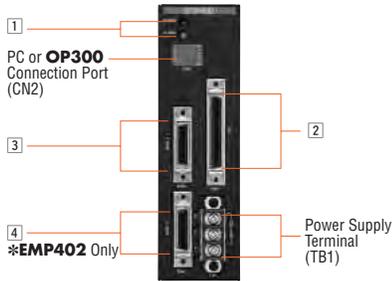
Weight: 0.57 lb. (0.26 kg)

DXF B295



Connection and Operation

Connector Layout



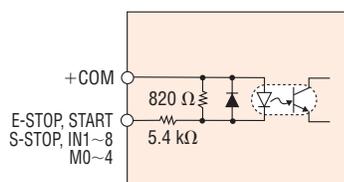
1 LED Monitor Display

Indication	Condition when LED ON
POWER	Lights during 24 VDC input.
ALARM	Lights during alarm signal output.

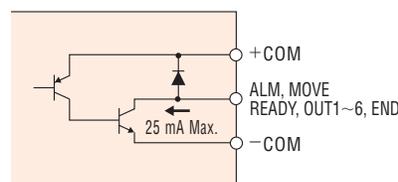
2 CN1 I/O Signal Connector

Pin No.	Signal	Description	Pin No.	Signal	Description
1	—	Not used	26	—	Not used
2	E-STOP Input	Emergency Stop	27	ALM Output	Alarm
3	START Input	Execute Sequence Program	28	—	Not used
4	S-STOP Input	Cease Sequence Execution	29	MOVE Output	Outputting Pulses
5	—	Not used	30	—	Not used
6	—	Not used	31	READY Output	Ready to accept START input
7	+COM Input	I/O Power Supply (+24 VDC)	32	+COM Input	I/O Power Supply (+24V)
8	IN1 Input	General Inputs	33	M0 Input	Sequence Number Selection
9	IN2 Input		34	M1 Input	
10	IN3 Input		35	M2 Input	
11	IN4 Input		36	M3 Input	
12	IN5 Input		37	M4 Input	
13	IN6 Input		38	—	Not used
14	IN7 Input		39	—	Not used
15	IN8 Input		40	—	Not used
16	+COM Input	I/O Power Supply (+24 VDC)	41	—	Not used
17	OUT1 Output	General Outputs	42	—	Not used
18	OUT2 Output		43	—	Not used
19	OUT3 Output		44	—	Not used
20	OUT4 Output		45	—	Not used
21	OUT5 Output		46	—	Not used
22	OUT6 Output		47	—	Not used
23	—	Not used	48	—	Not used
24	—	Not used	49	END Output	End Signal
25	-COM Input	GND for I/O	50	-COM Input	GND for I/O

Internal Input Circuit



Internal Output Circuit

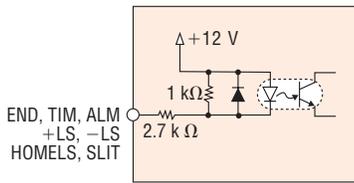


- 3 CN3 Axis-1 Driver Connector
- 4 CN4 Axis-2 Driver Connector

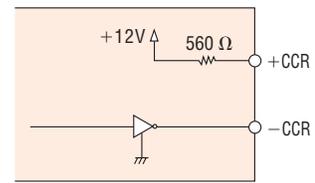
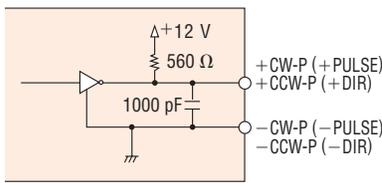
Pin No.	Signal	Description	Pin No.	Signal	Description
1	+CW-P output (+PULSE output) *	CW pulse (pulse) *	14	—	Not used
2	−CW-P output (−PULSE output) *		15	—	Not used
3	+CCW-P output (+DIR output) *	CCW pulse (Direction of rotation) *	16	+CCR output	Counter-clear
4	−CCW-P output (−DIR output) *		17	−CCR output	
5	END input	END signal from driver	18	GND	GND signal from driver
6	TIM input	Timing signal from driver	19	—	Not used
7	ALM input	Alarm signal from driver	20	—	Not used
8	+LS input	CW limit sensor	21	—	Not used
9	−LS input	CCW limit sensor	22	—	Not used
10	HOMELS input	Home limit sensor	23	—	Not used
11	SLIT input	Slit sensor	24	—	Not used
12	+12 V output	Power source for sensor (140 mA max.)	25	+5 V output	Power source for timing signal (20 mA max.)
13	GND	GND for sensor	26	GND	GND for timing signal

* The values in parentheses are for 1-pulse output mode. The other values are for 2-pulse output mode.

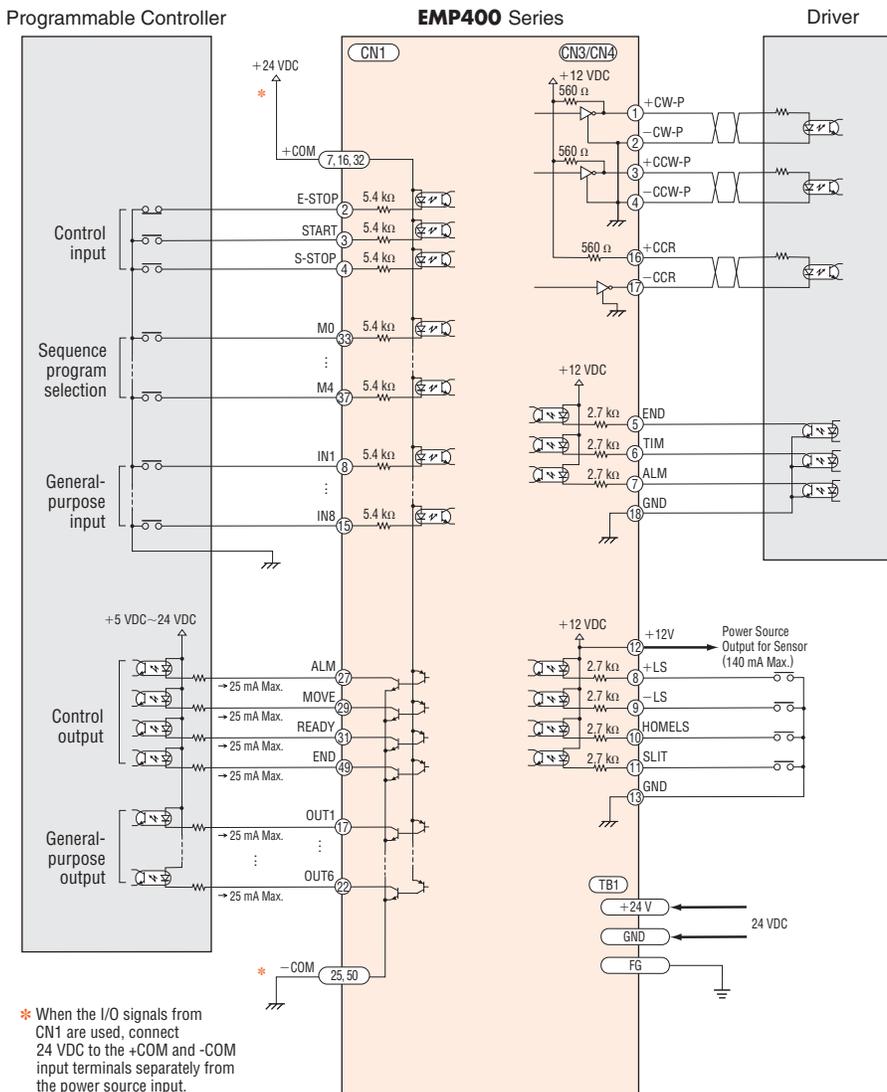
Internal Input Circuit



Internal Output Circuit



Connection Diagrams



Accessories (sold separately)

Operator Interface Unit



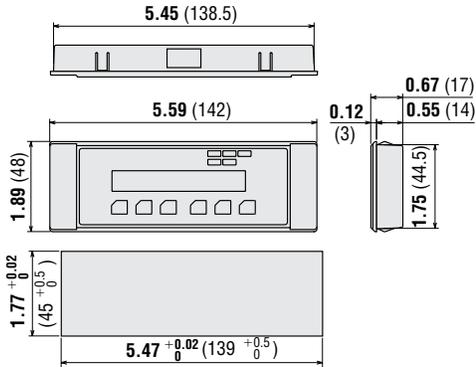
Model: **OP300**

Set the travel amount via teaching or monitor the current position. The unit comes with a cable 6.6 ft. (2 m) for connection with the **EMP400** Series.

* A personal computer cannot be connected while the **OP300** is connected.

Dimensions Scale 1/4, Unit = inch (mm)

DXF B297



Panel Cut-out Dimensions

I/O Cable with Terminal Block



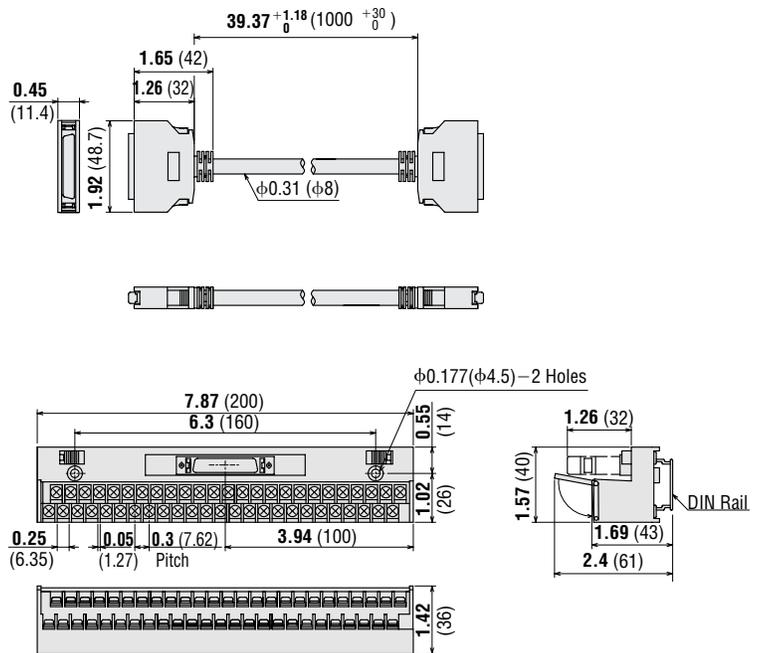
Model: **CC01EMP1T**

The **EMP400** Series, programmable controller, and I/O signals can all be connected via a terminal block.

Cable length: 3.3 ft. (1 m)

Dimensions Scale 1/4, Unit = inch (mm)

DXF B300



Terminal block pin configuration

26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Communication Cable



Model: **FC04W5**

Input programs from a PC

Use this 16.4 ft. (5 m) communication cable to connect the **EMP400** Series to a PC. (DSUB9F to RJ 11 cable)

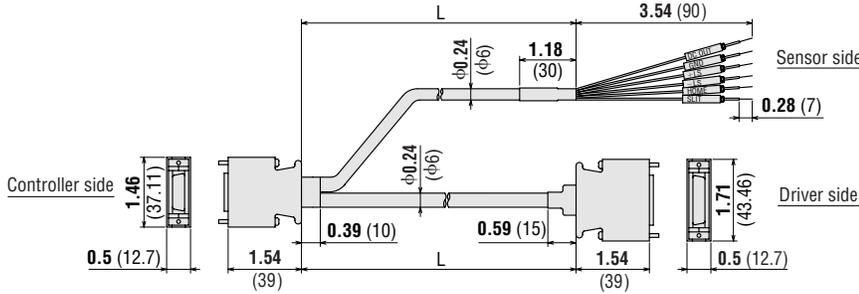
● Driver Cables



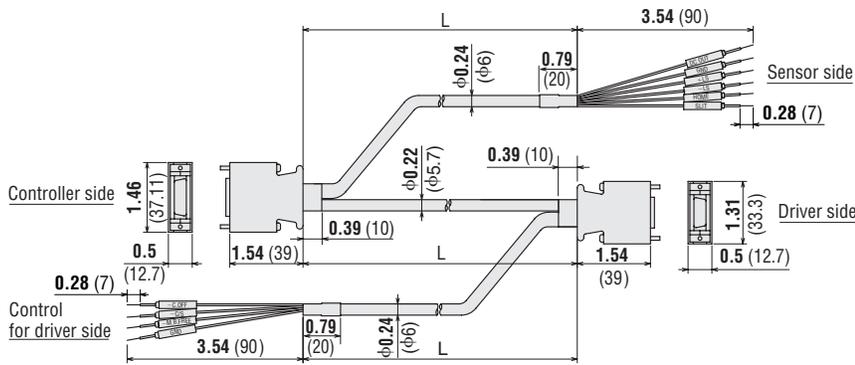
Model	Length (L)	Applicable Product	Connector Number
CC01EMP4	3.3 ft. (1 m)	AS, ASC Series	CN3 & CN4
CC02EMP4	6.6 ft. (2 m)	AS, ASC Series	
CC01EMP5	3.3 ft. (1 m)	RK Series	
CC02EMP5	6.6 ft. (2 m)	RK Series	

◆ Dimensions Scale 1/4, Unit = inch (mm)

● CC□□EMP4



● CC□□EMP5



Introduction	Motor & Driver Packages										2-Phase Stepping Motors without Encoder	2-Phase Stepping Motors with Encoder	Driver with Indexer	Controllers		Low-Speed Synchronous Motors	Accessories		
	AS	AS PLUS	ASC	RK	CRK II	CSK	PMC	UMK	CSK	PK/PV				PK	UI2120G			EMP401	SG8030J
	Closed Loop	5-Phase Microstep	5-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half	2-Phase Full/Half							
	AC Input	DC Input	AC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input	DC Input							

Stepping Motor Controller

SG8030J

The **SG8030J** is a compact controller that switches between two control methods according to the application: sequential positioning and data selection positioning.

With sequential positioning mode, up to four positioning control operations can be executed in the pre-determined sequence by simply inputting the start command from a programmable controller. In data selection positioning mode, positioning is controlled by selecting one of four sets of pre-registered positioning data and inputting the start command from a programmable controller.

■ Features

● High Performance, Compact Size

With dimensions of 1.89 in.×1.89 in.×3.3 in. (48 mm×48 mm ×84 mm), the **SG8030J** is the smallest Oriental Motor controller. They come in DIN-rail-mount and panel mount versions.

● High-Speed Positioning & Low Vibration

The jerk-limit control function allows you to set a shorter acceleration/deceleration time compared with the use of linear acceleration/deceleration patterns. This reduces the overall positioning time.



DIN Rail Mounting Model

Recessed Mounting Model

● Switch Control Methods Easily

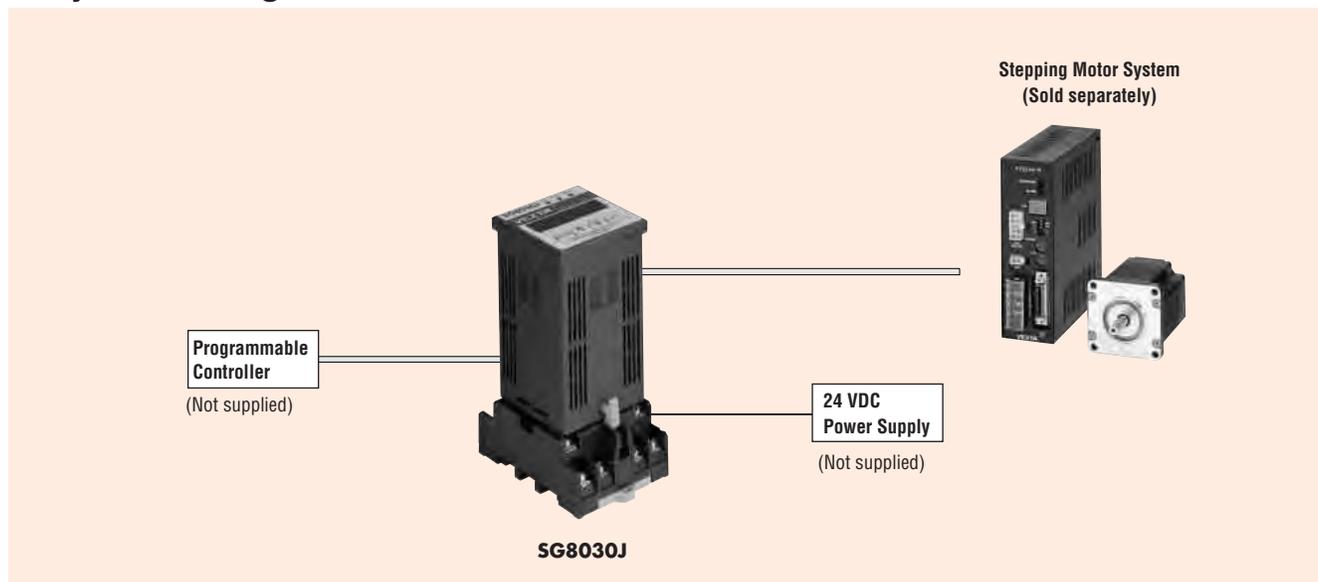
Switch control between sequential positioning and data selection positioning.

● Functions

The **SG8030J** offers commonly used functions including:

- Control modes: External, program, test
- Operating modes: Positioning, return to mechanical home, continuous operation

■ System Configuration



Product Line

Type	Model
DIN Rail Mounting Model	SG8030J-D
Recessed Mounting Model	SG8030J-U

Specifications

Model	SG8030J-D SG8030J-U	
Number of Control Axes	1 Axis	
Number of Settings	4 Profiles	
Positioning Data	Setting Mode	Set with touch key on front panel (stored in EEPROM)
	Setting Method	Incremental Mode (point to point)
Positioning Control	Mode	Sequential-Step Positioning Step-Select Positioning
	Move Distance Setting Range	Incremental 1~99999 Pulses
	Starting Pulse Speed Setting Range (VS)	100 Hz~10 kHz (100 Hz Units)
	Operating Pulse Speed Setting Range (VR)	100 Hz~200 kHz (100 Hz Units)
	Acceleration/Deceleration Rate Setting Range (TR)	1~100 ms/kHz (28 rate*)
Pulse Output Mode	1-Pulse Output/2-Pulse Output Mode select possible	
Operation Modes		Positioning Operation (INDEX Operation) Return to Mechanical Home Operation (HOME Operation) Continuous Operation (SCAN Operation) JOG Operation * Test mode only
	Control Modes	External Input Mode (EXT) Program Mode (PROG) Test Mode (TEST)
Mechanical Home Return Function	Sensor detection of home through designation of mechanical home detection direction of rotation	
Input Signals	24 VDC Photocoupler Input, Input Resistance 4.7 kΩ	
Output Signals	Transistor Output Linked to Photocoupler 24VDC 25 mA maximum	
Power Supply Input	24 VDC±5% Current Consumption 0.1 A	
Ambient Temperature	32°F~104°F (0°C~+40°C) (Nonfreezing)	
Ambient Humidity	20%~85% (Noncondensing)	

* The following 28 acceleration/deceleration rates can be selected. (unit: ms/kHz)

1, 2, 4, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

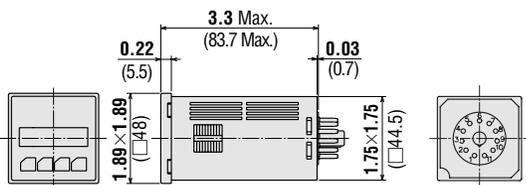
Dimensions Scale 1/4, Unit = inch (mm)

● DIN Rail Mounting Model

◆ SG8030J-D

Weight: 0.37 lb. (0.17 kg)

DXF B094

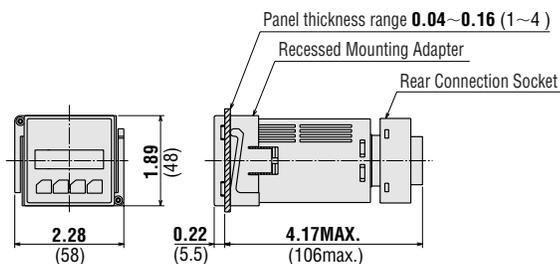


● Recessed Mounting Model

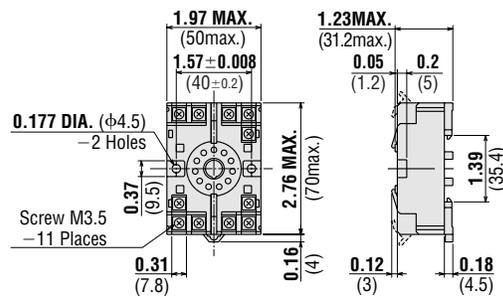
◆ SG8030J-U

Weight: 0.33 lb. (0.15 kg)

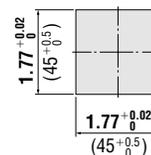
DXF B095



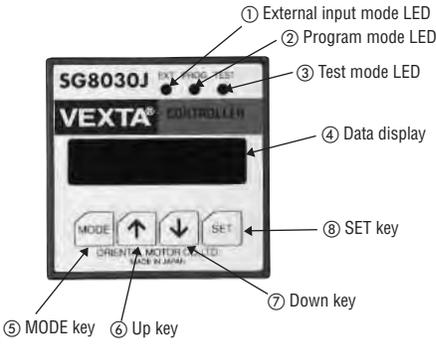
◆ Flush Connection Socket (Included)



◆ Panel Mounting Cut-Out Dimensions



Connection and Operation



①	EXT (LED): Lights up when external input is selected.
②	PROG (LED): Lights up when program mode is selected.
③	TEST (LED): Lights up when test mode is selected.
④	Data display: Shows operation and setting status.
⑤	MODE key
⑥	↑ key
⑦	↓ key
⑧	SET key

Connection Socket Signal Table

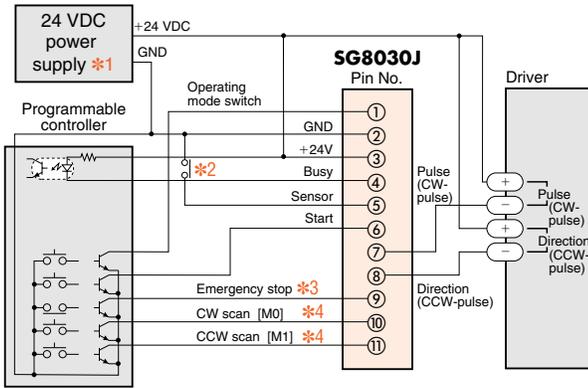
Pin No.	Signal Designation	I/O	Function
1	Operation Mode Input	Input	S: Switching Positioning/Home Detection Operation D: Switching Positioning/Home Detection Operation and Continuous Operation
2	GND	Input	24 VDC Power Supply
3	+24 VDC	Input	
4	Busy	Output	Output during Pulse Oscillation
5	Sensor	Input	Mechanical Home Detection Sensor
6	Start	Input	Start Signal
7	CW Pulse/Pulse	Output	CW Pulse (2-pulse input mode)/Pulse (1-pulse input mode)
8	CCW Pulse/Rotation Direction	Output	CCW Pulse (2-pulse input mode)/Rotation Direction (1-pulse input mode)
9	Emergency Stop	Input	Stop all operations (including busy output)
10	S: CW Scan	Input	S: CW Continuous Operation
	D: M0 [CW Scan]		D: Data Select Signal [CW Continuous Operation]
11	S: CCW Scan	Input	S: CCW Continuous Operation
	D: M1 [CCW Scan]		D: Data Select Signal [CCW Continuous Operation]

Indications in brackets [] apply to state when mode switching signal was input.

* Only pins 1, 10, 11 differ for sequential positioning and selection positioning.

"S" in the table indicates sequential positioning and "D" indicates selection positioning.

Connection Diagram



*1 The pulse output section uses a constant-current circuit, so no external resistor is required.

Connect +5 V power directly to the driver + terminals and connect the 24 VDC and 5 VDC GND terminals to each other.

*2 Use a 24 VDC home sensor.

*3 This should be normally closed during normal operation.

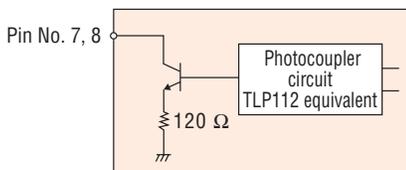
When not using the emergency stop input signal, always connect to the +24 VDC terminal.

The "E.STOP" message is displayed when the power supply turns off.

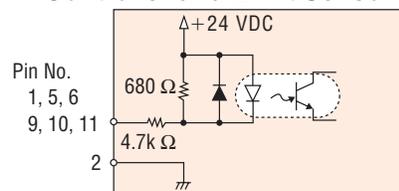
*4 The names in brackets [] are for data selection positioning type.

Description of Input/Output Signals

Output Signals to Driver



Input Signals from Programmable Controller and Limit Sensor



Output Signals to Programmable Controller

