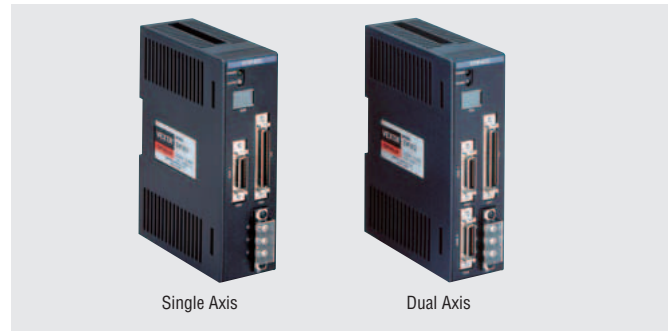


Stored Program Controller EMP400 Series

●Additional Information●
Technical reference → Page G-1

The **EMP400** Series controllers allow for easy programming and RS-232C communications. Available in a single axis or dual axis version, with or without the optional **OP300**, various motion profiles can be achieved.

RoHS



Features

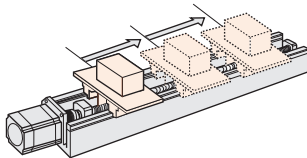
●Up to 32 Programs

The **EMP400** Series can store 32 different operation programs. You can select and execute a desired program or programs using an external input signal. For example, you can create a dedicated program for each motion for selection/execution as necessary. In addition to the 32 programs, you can also input one program that runs automatically when the power is turned on. A maximum of 1000 steps can be stored when all programs are combined together.

●Various Operation Patterns

◇Repetitive Positioning

Simple movements like "repeating positioning operation for a specified number of times and then return to the home at the end" can be implemented effortlessly.



Example of Repetitive Positioning

◇Stopping via Sensor Input

You can start an operation from a desired position using a general-purpose input and cause the motor to decelerate to a stop upon sensor detection.

◇Linear Interpolation between Two Axes

Positioning operations involving two axes can be performed simultaneously via linear interpolation.

◇Continuous Operation at Variable Speeds

You can change the speed to desired levels during continuous operation.

●Teaching Function

You can adjust the travel amount or monitor the current position via teaching, using an accessory **OP300** control module.

●Started with Text Terminal

```

EMP400
Controller
Software Version *.*
Copyright 2000
ORIENTAL MOTOR CO.,LTD.

0>edit 4
Seq 4
[1] PULSE2 2
[2] T2 30
[3] V2 1000
[4] VS2 500
[5] H2 +
[6] D2 1000
[7] INC2
[8] END

---->Select:fx,ix,or Dx(Alt/Ins/Del/Q=exit)
>>Command:

```

Functions

Pulse Oscillation

Various operation patterns are provided standard with the **EMP** Series from positioning and origin return to dual axis linear interpolation. All you need is to set the necessary parameters.

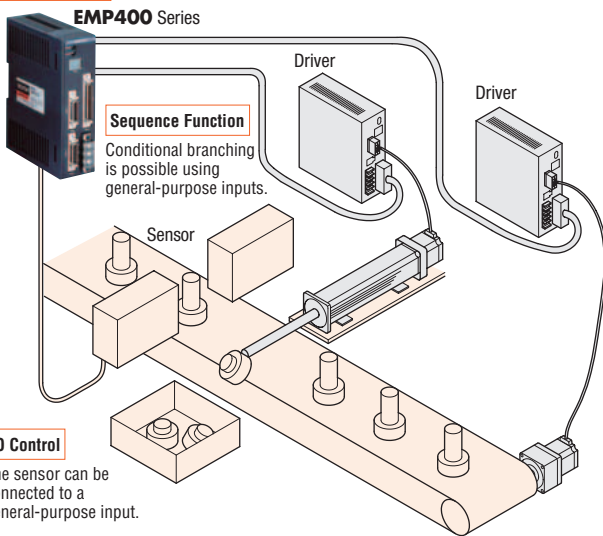
Sequence Function

A series of operation patterns can be programmed using dedicated commands which 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.

Pulse Oscillation

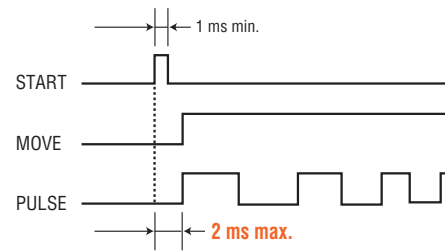


Pulse Oscillation

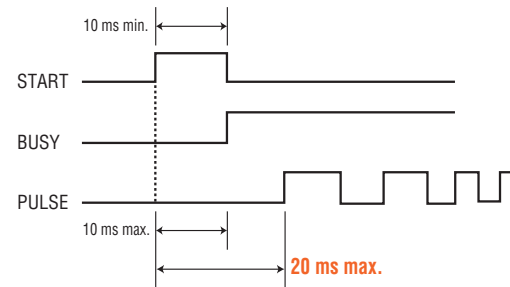
Fast Response Time

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

Pulse Oscillating Time of EMP400 Series



Pulse Oscillating Time of Conventional Controller

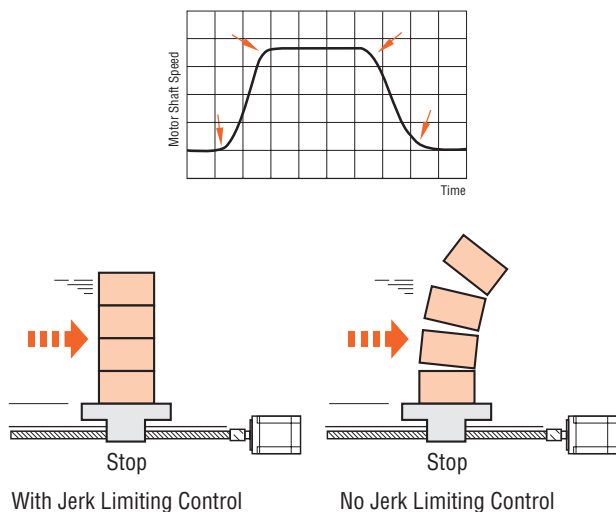


High-Speed Positioning and Low Vibration

The jerk limiting 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 limiting 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.



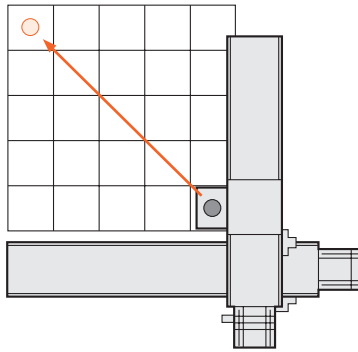
Introduction
AC Input Motor & Driver
AR /Gearing 0.36° /Gearing 0.72° /Gearing
AS /Gearing 0.36° /Gearing
RK /Gearing 0.9°/1.8°
UMK
DC Input Motor & Driver
AR /Gearing 0.36° /Gearing
ASX /Gearing 0.36° /Gearing
CRK /Gearing 0.9°/1.8°
CMK /Gearing 0.9°/1.8°
RBK /Gearing 1.8°
PK
PK
PK
PK
PK/PV
PK
Controllers SCK10 EMP400 /SG80301
Accessories

● Positioning Operation

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

● Linear Interpolation Operation

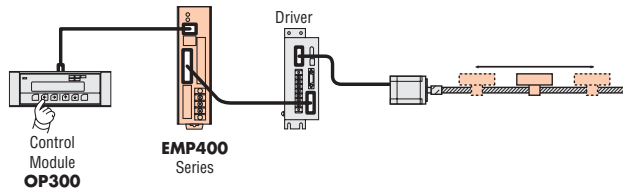
Two axes are controlled simultaneously, allowing direct movement to a target position.



● Teaching Function

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

EMP400 Series



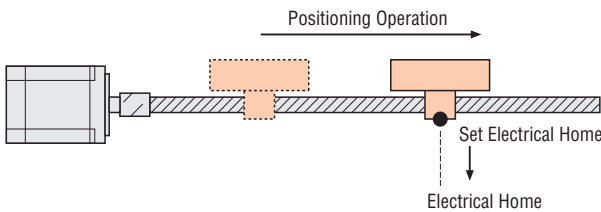
● Continuous Operation

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

● Set Soft Home (Clears the current position)

◇ Electrical Home

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.

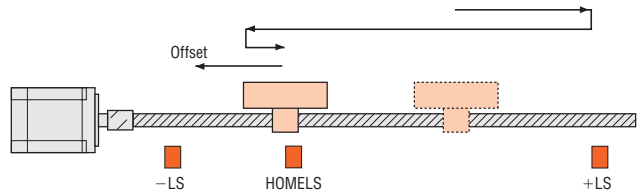


● Homing (Return to mechanical home operation)

The 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.

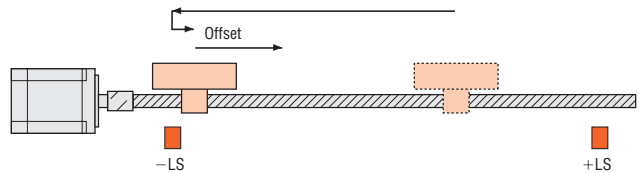
◇ High-Speed Return (Three-sensor mode)

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.



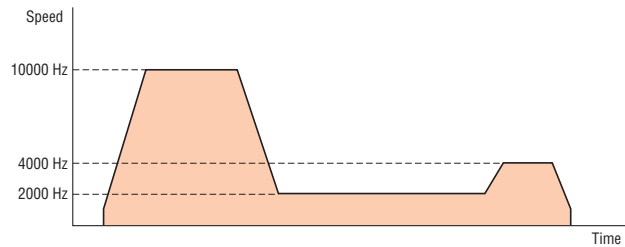
◇ Constant-Speed Return (Two-sensor mode)

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



● Multistep Speed-Change Operation

Speed can be changed on the fly during continuous operation.

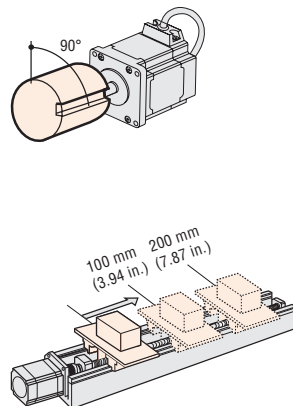


● A Choice of Acceleration/Deceleration Patterns

Each operation can be specified with a linear acceleration /deceleration pattern or jerk limiting control.

● Distance Options

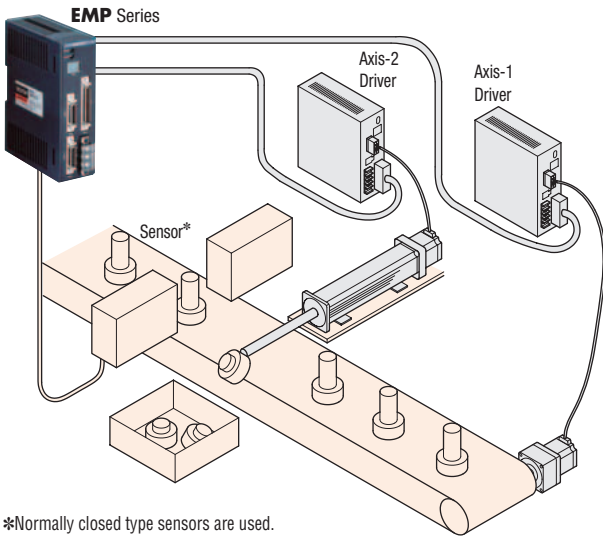
You can set travel amounts in degrees and mm in addition to pulses.



Sequence Function

● Stopping via Sensor Input

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 general-purpose input 1.



*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

```

Seq 1
[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 5000 Hz
[9] D2 +1000 ; Axis 2 (ejection)     Travel amount 1000 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

● Full Range of I/O

In addition to the signals for controlling the **EMP400** Series (e.g., start, external 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.

General-Purpose I/O

8 Inputs
6 Outputs

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

Motor Control I/O (Dedicated)

PULSE Output
CCR Output
ALARM Input
END Input
TIMING Input
+LS Input
-LS Input
HOMELS Input
SLIT Input
etc.

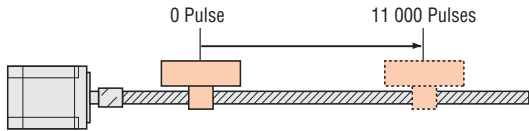
Introduction	AC Input Motor & Driver	DC Input Motor & Driver	Controllers
AR DSTEP R	0.36° /Geared	0.36° /Geared	SKX10 /EMP400 /SG80300
AS DSTEP R	0.72° /Geared	0.36° /Geared	Accessories
UMK	0.9°/1.8°	0.9°/1.8° /Geared	
AR DSTEP R	0.36° /Geared	0.36°/0.72° /Geared	
ASX DSTEP R	0.36° /Geared	0.9°/1.8° /Geared	
CRK	0.36°/0.72° /Geared	1.8° /Geared	
CMK	0.9°/1.8° /Geared	1.8° /Geared	
RBK	1.8° /Geared	1.8° /Geared	
PK	0.36°	PK	
PK	0.72°	PK/PV	
PK	0.9°	PK	
PK	1.8°	PK/PV	
PK	Geared	PK	

EMP400 Series 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.
Data Setting	S	Decelerate the motor to a stop.
	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 limiting time.
	T	Set the acceleration/deceleration rate.
Program Control	V	Set the operating speed.
	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.
Hardware Setting	ENDL	End the loop section.
	END	End the sequence program.
	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.
Others	ID	Perform the initial setting for a linear motion product.
	PULSE	Set the pulse-output mode.
	SEN	Set the home-detection mode.
	TIM	Set the use of TIM. input and SLIT input.
Others	UNIT	Set the unit for travel amount.
	EDIT	Edit the sequence program.
	DEL	Delete the sequence program.
	DWNLD	Download the sequence program.
Others	UPLD	Upload the sequence program.
	R	Check the system conditions.

Sample Programs

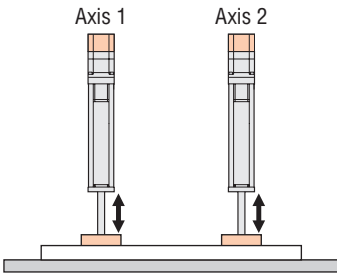
Sample 1 Positioning operation



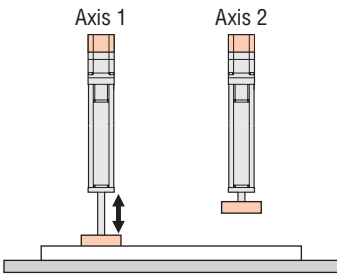
- [1] VS1 500 ; Starting speed 500 Hz
- [2] V1 1000 ; Operating speed 1000 Hz
- [3] T1 30.0 ; Acceleration/deceleration rate 30.0 msec/kHz
- [4] D1 +11000 ; Travel amount 11 000 pulses in CW direction
- [5] INC1 ; Execute relative positioning operation

Sample 2 Inputting multiple operation patterns

Simultaneous positioning of two axes



Axis 2 moves after axis 1 moves

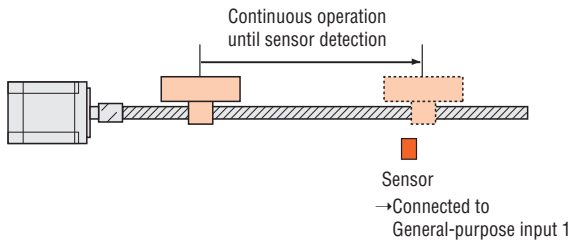


- Seq 99 ; Hardware setting
- [1] UNIT1 0.02,1 ; Axis 1 Change to travel amount mm
- [2] UNIT2 0.02,1 ; Axis 2 Change to travel amount mm

- Seq 1 ; Two axes execute at same time
- [1] V1 1000 ; Axis 1 Operating speed 1000 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

- Seq 2 ; After axis 1 executes, axis 2 executes
- [1] V1 1000 ; Axis 1 Operating speed 1000 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 2000 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

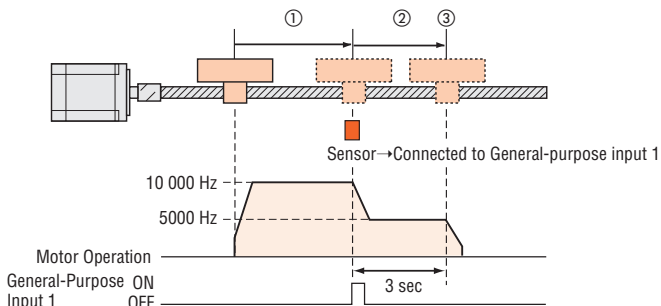
Sample 3 Positioning using a sensor



- [1] VS1 500 ; Starting speed 500 Hz
- [2] V1 20000 ; Operating speed 20 000 Hz
- [3] T1 30.0 ; Acceleration/deceleration rate 30.0 msec/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 5000 Hz upon sensor detection
- ③ Decelerate to a stop after three seconds



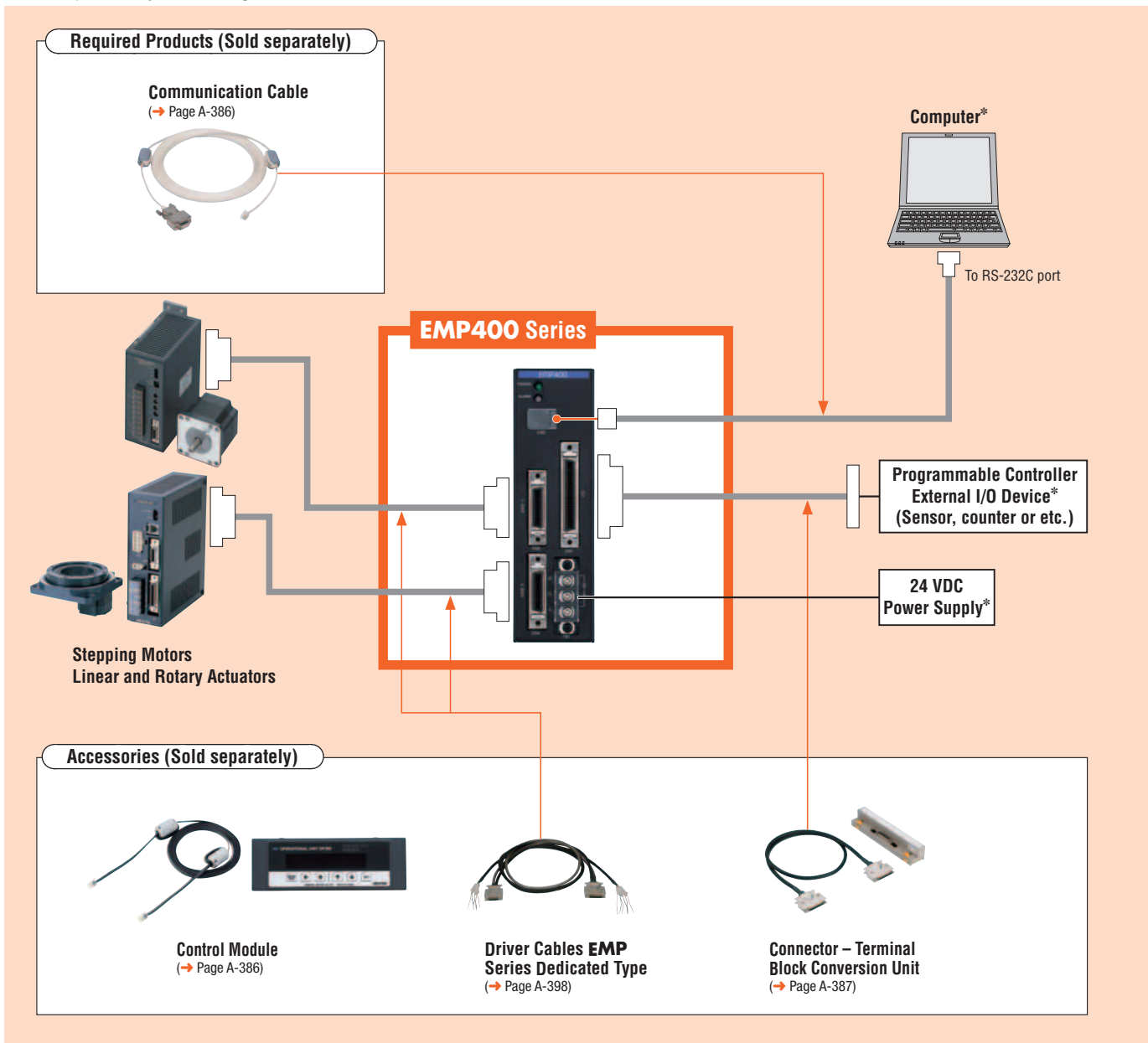
- [1] VS1 500 ; Starting speed 500 Hz
- [2] V1 10000 ; Operating speed 10 000 Hz
- [3] T1 30.0 ; Acceleration/deceleration rate 30.0 msec/kHz
- [4] H1 + ; Direction of rotation + (CW direction)
- [5] SCAN1 ; Start continuous operation
- [6] IN 1,1 ; General-purpose input 1 Waiting for ON
- [7] V1 5000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

Introduction	
AC Input Motor & Driver	0.36° / Geared / 0.72° / Geared
AS	0.36° / Geared / 0.72° / Geared
AR	0.36° / Geared / 0.72° / Geared
ASX	0.36° / Geared / 0.72° / Geared
UMK	0.9°/1.8°
CRK	0.36° / Geared / 0.72° / Geared
CMK	0.9°/1.8°
RBK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
Controllers	SKA10 / EMP400 / SG80301
Accessories	

System Configuration

EMP400 Series

An example of a system configuration with the **EMP400** Series controller.



Example of System Configuration

EMP Series	Sold Separately	Sold Separately		
	Communication Cable	Control Module	Driver Cable EMP Series Dedicated Type	Connector - Terminal Block Conversion Unit [1 m (3.3 ft.)]
EMP402-2	FC04W5	OP300	CC01EMP5	CC50T1

● The system configuration shown above is an example. Other combinations are available.

* Not supplied

Product Number Code

EMP40 1 - 1

① ② ③

①	Series	EMP400 Series
②	Number of Axes	1 : Single Axis 2 : Dual Axis
③	Connector	1 : Without Connectors 2 : With Connectors

Product Line

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

The following items are included in each product.
 Controller, Connector for Input/Output Signal*, Operating Manual (CD-ROM)
 *Only for model with connectors

Specifications RoHS

	Series	EMP400 Series
Program	Number of programs	32
	Capacity	1000 commands
	Input method	Command input via terminal program
	Number of control tasks	Main: 1 Sub: 0
Oscillator Specifications	Number of control axes	EMP401 : Single axis, EMP402 : Dual axis
	Pulse output mode	1-pulse output/2-pulse output mode
	Frequency	10 Hz~200 kHz (1 Hz increment) Pulse duty 50% (Fixed)
	Acceleration/deceleration rate	0.5~1000 msec/kHz (0.1 msec/kHz increments)
	Acceleration/deceleration pattern	Linear/jerk limiting control
Operation Pattern	Travel amount	Relative: -16 777 215~+16 777 215 pulses Absolute: -8 388 608~+8 388 607 pulses
	Relative positioning operation	Available
	Absolute positioning operation	Available
	Continuous operation	Available
	Return to mechanical home operation	Available
	Dual axis liner interpolation operation	Available
	Multistep speed-change operation	Available in continuous operation
Communication Specifications	Communication method	RS-232C based (3-wire)
	Transmission rate	9600 bps
Input/Output Signal Specifications	Inputs (START, E-STOP, etc.)	3 photocoupler inputs 24 VDC, Input resistance: 5.4 kΩ
	Outputs (MOVE, ALM, etc.)	4 open-collector outputs 24 VDC, 25 mA maximum each
	General-purpose inputs	8 photocoupler inputs 24 VDC, Input resistance: 5.4 kΩ
	General-purpose outputs	6 open-collector outputs 24 VDC, 25 mA maximum each
	Driver and sensor inputs	7 photocoupler inputs/axis 12 VDC, Input resistance: 2.7 kΩ
	Driver outputs	3 open-collector outputs/axis 12 VDC, 20 mA maximum each
General Specifications	Power source	24 VDC±5%, Current consumption 0.45 A
	Dimensions	W 40 mm (1.57 in.) × H 135 mm (5.31 in.) × D 100 mm (3.94 in.)
	Mass	0.26 kg (0.57 lb.)
	Ambient temperature	0~+50°C (+32~+122°F) (non-freezing)
	Ambient humidity	20~85% (non-condensing)

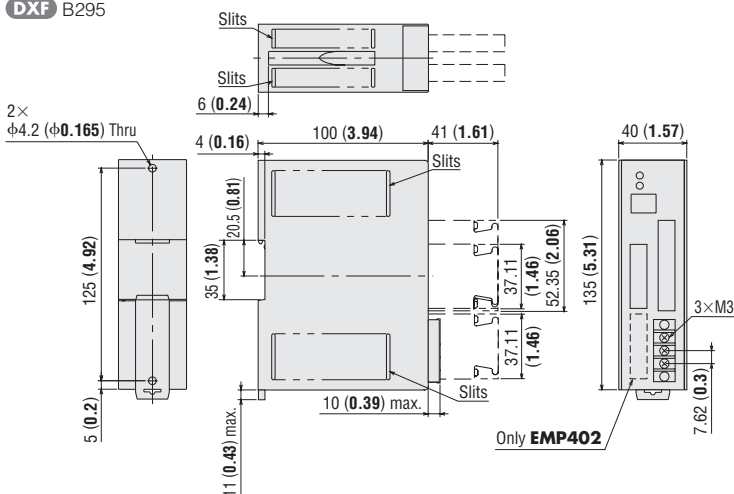
Introduction
 0.36° / Geared
 AC Input Motor & Driver
 0.72° / Geared
 RK
 0.9°/1.8°
 UMK
 0.36° / Geared
 AR
 0.36° / Geared
 ASX
 DC Input Motor & Driver
 0.36°/0.72° / Geared
 CRK
 0.9°/1.8° / Geared
 CMK
 1.8° / Geared
 RBK
 0.36°
 PK
 0.72°
 PK
 0.9°
 PK
 1.8°
 PK/PV
 Geared
 PK
 Controllers
 SCK10 / EMP400 / SG8030J
 Accessories

Dimensions Unit = mm (in.)

● EMP400 Series

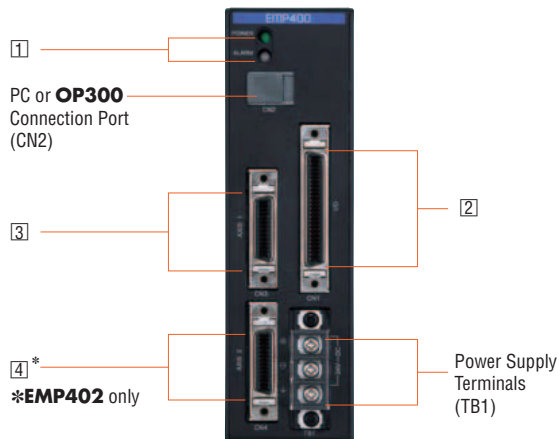
Mass: 0.26 kg (0.57 lb.)

DXF B295



Connection and Operation

● Names and Functions of Controller Parts



● Accessories (Only products in which a connector is included)

• I/O Connector

Case: 54331-0501 (MOLEX)

Connector: 10150-3000PE (SUMITOMO 3M)

• Driver and Sensor Connector (EMP402 includes two)

Case: 54331-0261 (MOLEX)

Connector: 10126-3000PE (SUMITOMO 3M)

1 LED Indicators

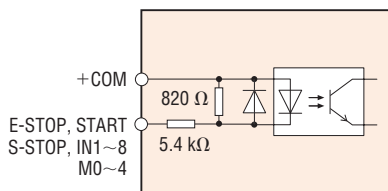
Indication	When Activated
POWER	Lights during 24 VDC input.
ALARM	Lights during alarm signal output.

2 CN1 I/O Signal Connector

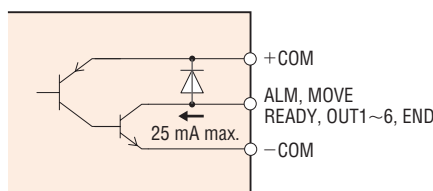
Pin No.	Signal Name	Description	Pin No.	Signal Name	Description	
1	—	Not used	26	—	Not used	
2	E-STOP input*	External stop	27	ALM output	Alarm	
3	START input	Execute sequence	28	—	Not used	
4	S-STOP input	Cease sequence execution	29	MOVE output	Output when outputting pulses	
5	—	Not used	30	—	Not used	
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 (+24 VDC)	
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	

*Connect to the ground [B contact (normally closed)] in normal operation. Use a half-pitch connector for connection.

Internal Input Circuit



Internal Output Circuit



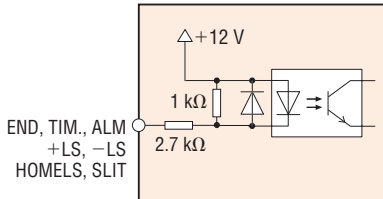
3 CN3 Axis-1 Driver/Sensor Connector

4 CN4 Axis-2 Driver/Sensor Connector

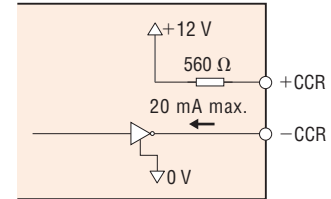
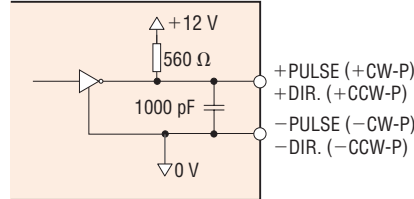
Pin No.	Signal Name	Description	Pin No.	Signal Name	Description
1	+PULSE output (+CW-P output)*	Pulse (CW pulse)*	14	-	Not used
2	-PULSE output (-CW-P output)*		15	-	Not used
3	+DIR. output (+CCW-P output)*	Rotation direction (CCW pulse)*	16	+CCR output	Counter-clear
4	-DIR. output (-CCW-P output)*		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 sensor	23	-	Not used
11	SLIT input	Slit sensor	24	-	Not used
12	+12 V output	Power supply for sensor (140 mA max.)	25	+5 V output	Power supply for timing signal (20 mA max.)
13	GND	GND for sensor	26	GND	GND for timing signal

*The signal names in parentheses are for 2-pulse output mode.

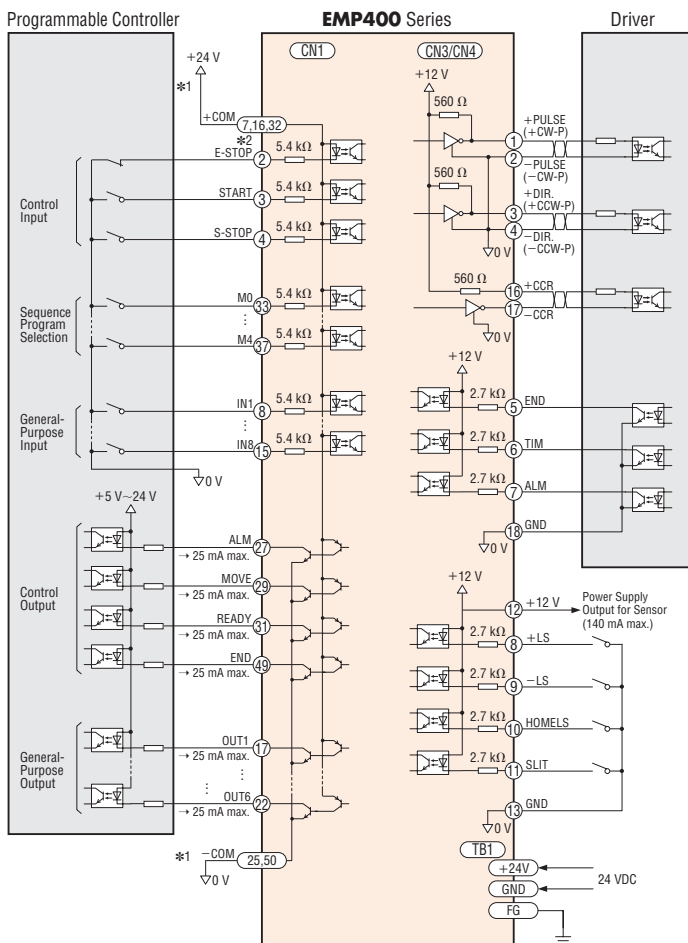
Input Circuit



Output Circuit



Connection Diagram

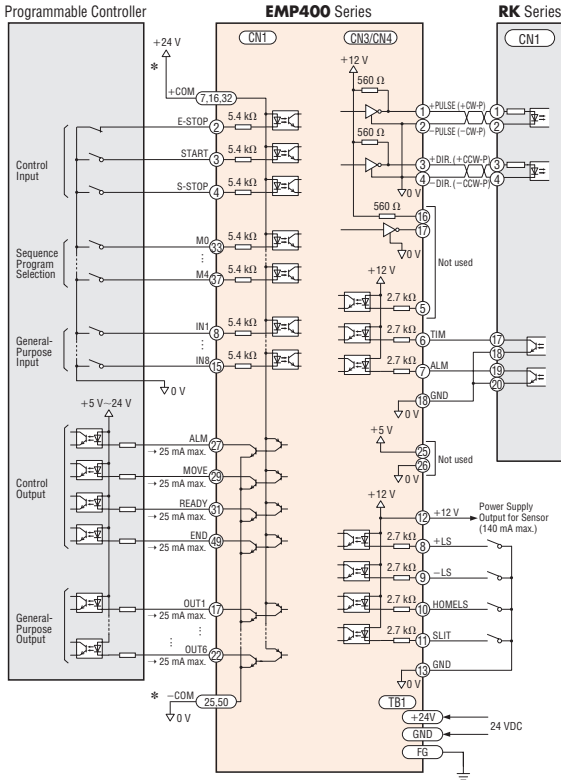


*1 When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

*2 E-STOP: Connect to the ground [B contact (normally closed)] in normal operation.

● Connection Diagrams of Oriental Motor Products

RK Series

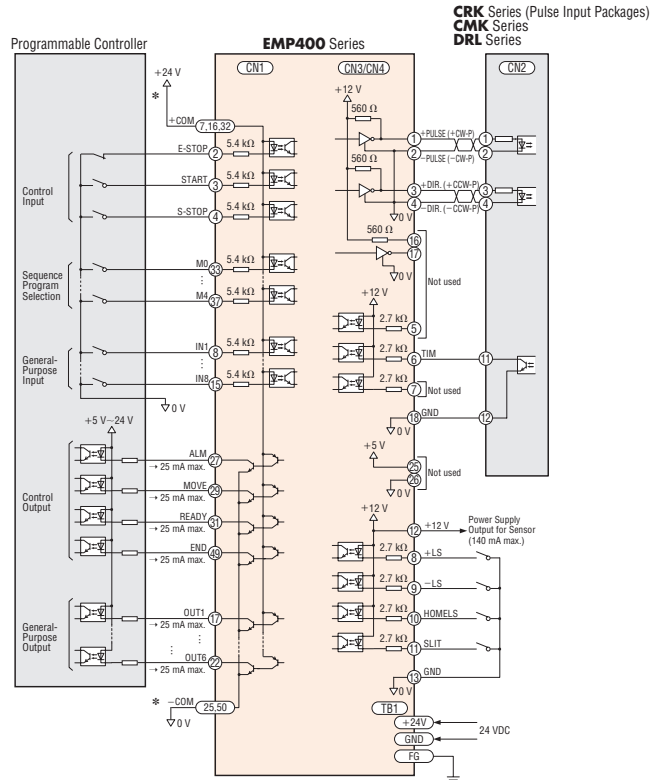


* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

Note

● Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.

CRK Series Pulse Input Packages, CMK Series, DRL Series

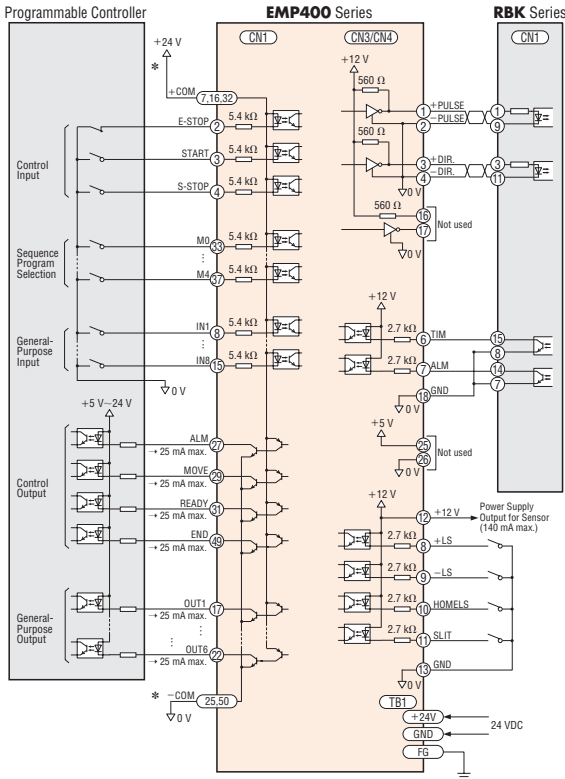


* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

Note

● Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.

RBK Series

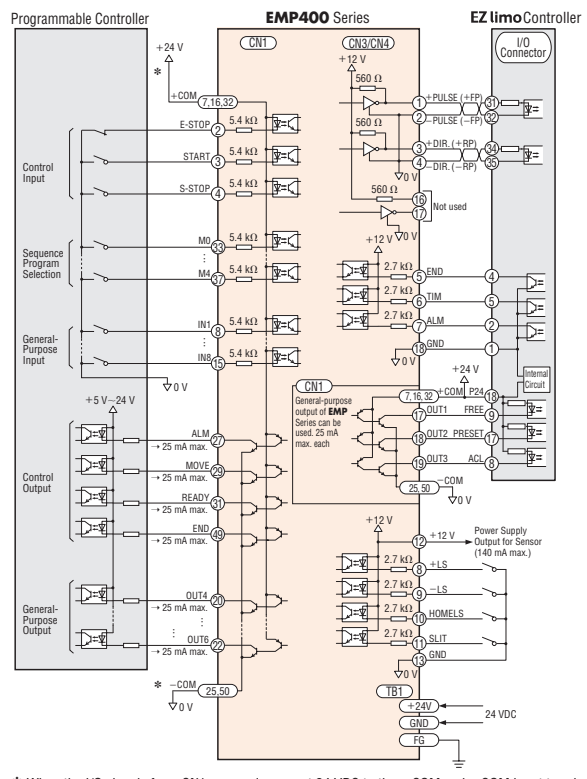


* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

Note

● Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.

EZ limo EZS II, SPV, EZC II, EZA, PWA II Series

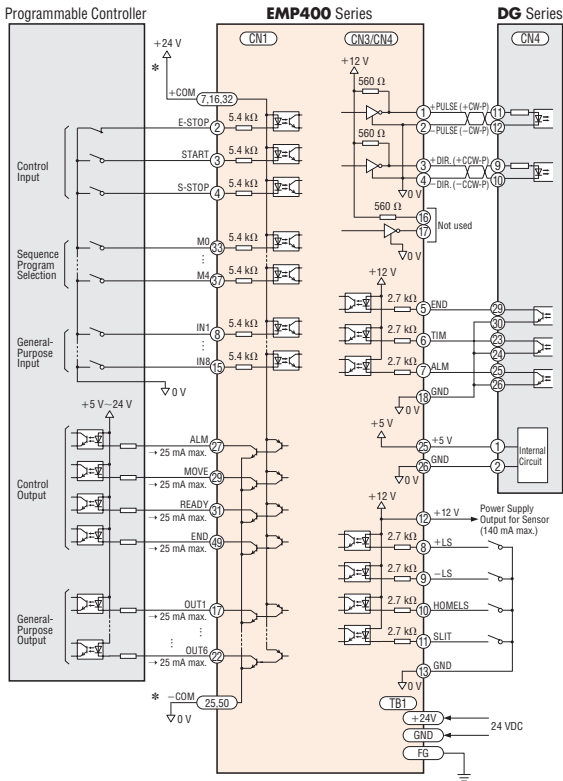


* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

Notes

- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.
- Supply 24 VDC to the power supply for input/output signals of the **EZ limo** controller. The signal will not activate without supplying 24 VDC.

DG Series (AC input)

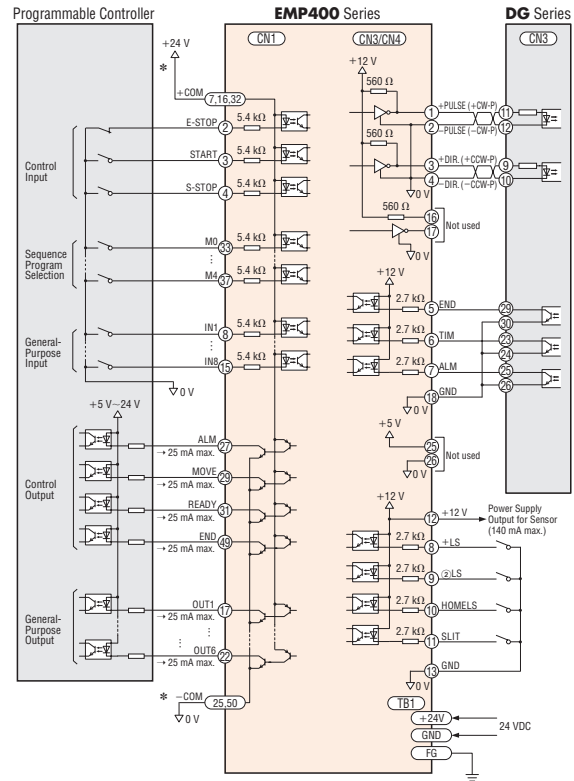


* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

Note

- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.

DG Series (24 VDC input)



* When the I/O signals from CN1 are used, connect 24 VDC to the +COM and -COM input terminals separately from the power supply input.

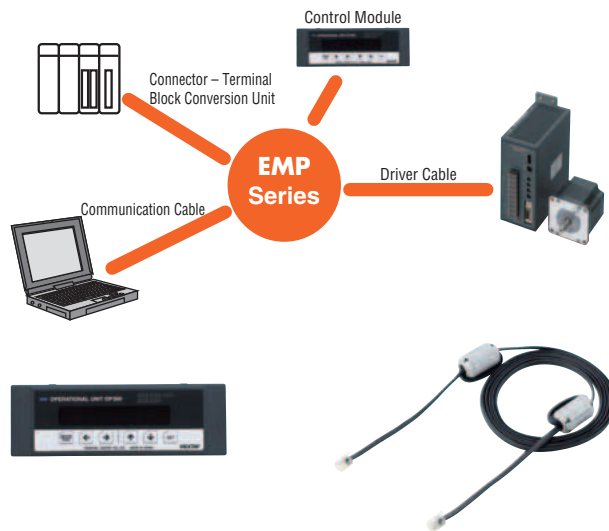
Note

- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.

Introduction	
AR	AC Input Motor & Driver
AS	0.36° / Geared
ASX	0.36° / Geared
ASX	0.36° / Geared
CRK	0.36° / Geared
CMK	0.36° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
5CK10 / EMP400 / SG80301	Controllers
	Accessories

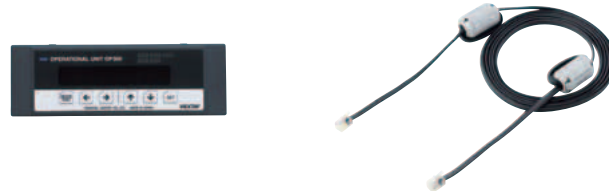
Accessories (Sold separately)

We have a range of optional cables that achieve one-touch connection between the **EMP400** Series and peripherals, as well as an operator interface unit used for teaching operation.



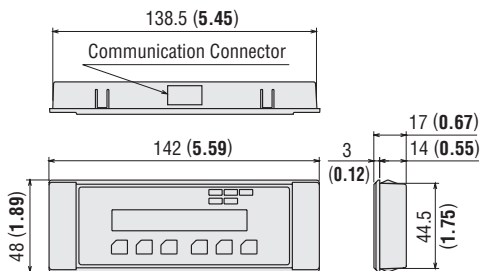
Control Module **OP300** (RoHS)

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

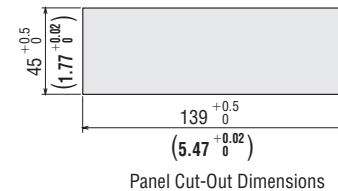


Dimensions Unit = mm (in.)

DXF B297



Panel Cut-Out



Communication Cable **FC04W5** (RoHS)

This is a 5 m (16.4 ft.) cable with a D-sub 9 connector at one end for the RS-232C communications between the PC and the **EMP400** Series controller.



Driver Cables **EMP Series Dedicated Type**

This is a shielded cable equipped with the half-pitch connector snaps into the driver for stepping motors or motorized actuators. The other end of the cable is equipped with the connector for the **EMP** Series controller.

→ Pages A-398



● Connector – Terminal Block Conversion Unit **CC50T1** (RoHS)

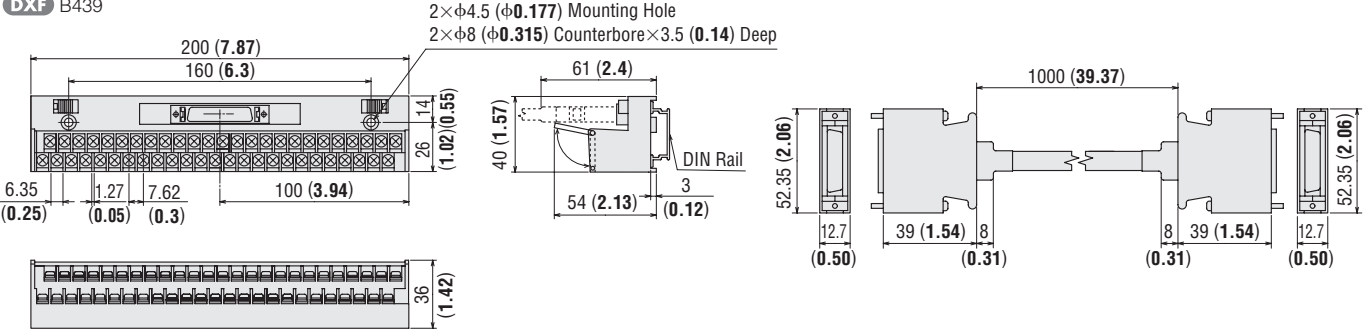
The **EMP** Series and programmable controller can be connected via a terminal block.

- A signal name plate for easy, one-glance identification of driver signal name is available
- DIN rail mountable
- Cable length: 1 m (3.3 ft.)



◇ Dimensions Unit = mm (in.)

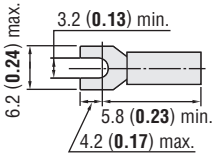
DXF B439



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

- Recommended Crimp Terminals
- Terminal screw size: M3
- Tightening torque: 1.2 N-m (170 oz-in)
- Applicable minimum lead wire: AWG22
- Round terminals are not available.



Introduction	AC Input Motor & Driver	DC Input Motor & Driver	Motor Only	Controllers	Accessories
AR	0.36° / Geared	0.36° / Geared	0.36°	5CX10	
AS	0.72° / Geared	0.9°/1.8° / Geared	0.72°	EMP400	
RK	0.9°/1.8°	1.8° / Geared	0.9°	SG8030J	
UMK					
AR					
ASX					
CRK					
CMK					
RBK					
PK					
PK					
PK					
PK/PV					
PK					