

# Electric Actuator

## High Performance

### SliderType/ High Precision Type

Battery-less Absolute (Step Motor 24 VDC)

# Reduces cycle time



## Cycle time

**Reduced by 39%** (0.37 s  $\triangleleft$  0.61 s)  
compared with the existing model\*1

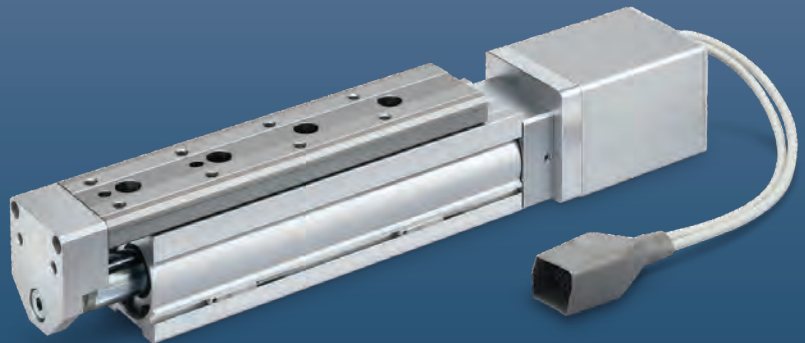
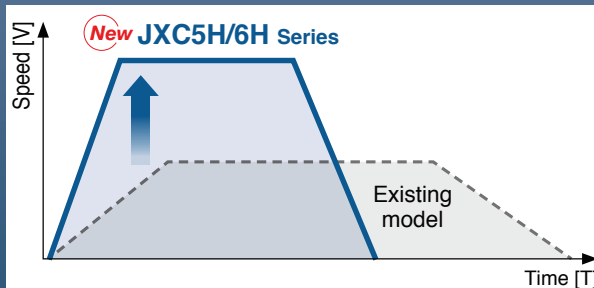
\*1 When LESYH25DGA-150 is operated from 0 to 150 mm

## Acceleration/ Deceleration

**10000 mm/s<sup>2</sup>**  
(200% increase compared with the existing model)

## Max. speed

**800 mm/s**  
(Improved by 200% compared with the existing model)



Improved positioning repeatability due to the adoption of a ball screw drive.

Positioning repeatability  **$\pm 0.01$  mm**

Lost motion **0.1 mm or less**

Battery-less absolute encoder compatible

## High Performance Step Motor Controller

Higher acceleration and maximum speed can be set with the special controller.

Parallel I/O

JXC5H/6H Series p. 33



EtherCAT/EtherNet/IP™/  
PROFINET

JXCEH/9H/PH Series p. 40



# LESYH□G Series

[www.smcusa.com](http://www.smcusa.com)

[www.smcworld.com](http://www.smcworld.com)

NB100-149A

# Battery-less Absolute Encoder Type Restart from the last stop position is possible after recovery of the power supply.

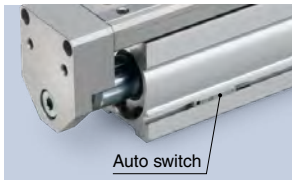
The position information is held by the encoder even when the power supply is turned off. A return to origin operation is not necessary when the power supply is recovered.

## Auto switches are mountable.

### Mounting groove for auto switches

For checking the limit and the intermediate signal  
Applicable to the D-M9□, D-M9□E, and D-M9□W (2-color indicator)

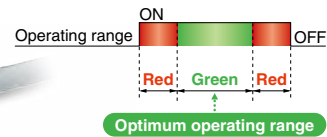
\* The auto switches should be ordered separately. For details, refer to pages 25 to 27.



### 2-color indicator solid state auto switch

Accurate setting of the mounting position can be performed without mistakes.

A light lights up when within the optimum operating range.



## Maintenance labor can be reduced as the product does not require the use of batteries.

Batteries are not required to store the position information.  
Therefore, there is no need to store spare batteries or to recycle and replace dead batteries.



Does not contain a battery



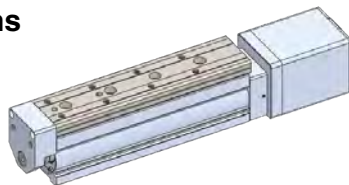
AC servo motor driver

Contains a battery

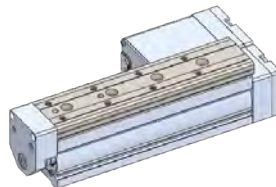
## Motor mounting position

### Select from 3 directions

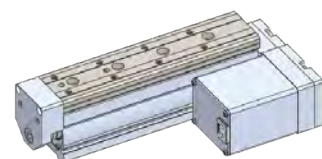
In-line



Right side parallel

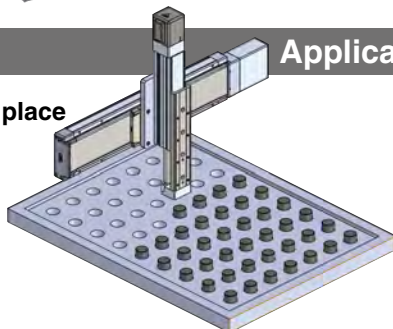


Left side parallel

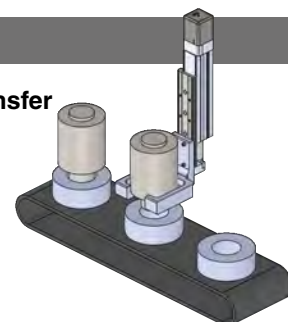


## Application examples

- For pick and place operations



- For vertical transfer (Z axis)



# Step Data Input Type JXC5H/6H Series p. 33

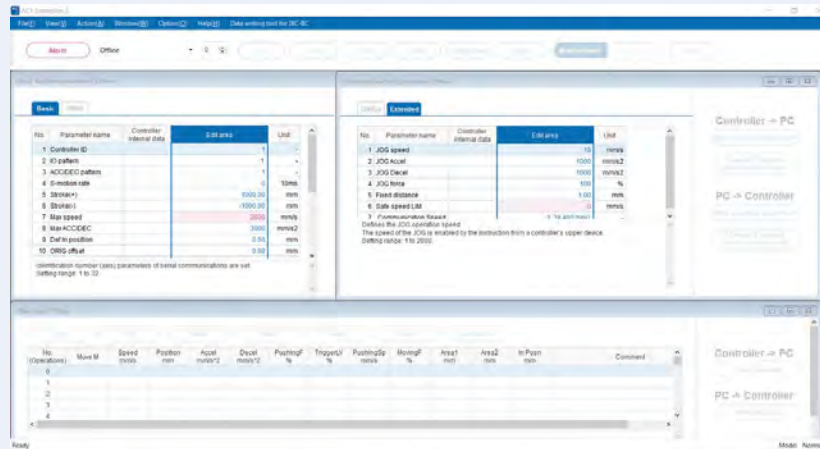


## ACT 2 Controller Setting Software ACT Controller 2

### Easy-to-use setting software ACT Controller 2 (For PC)

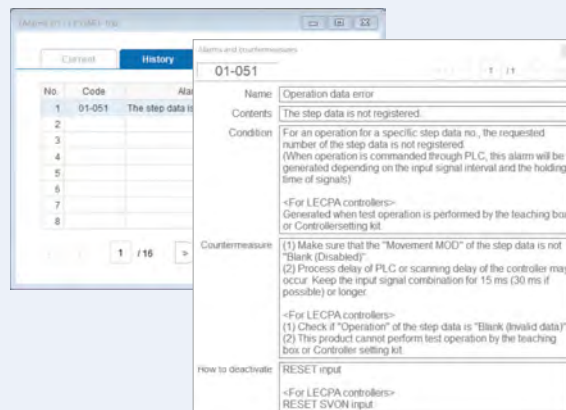
#### Various functions available in normal mode (Compared with the existing ACT Controller)

##### ● Parameter and step data setting



\* Customers operating computers with specifications other than Windows 10/64 bit should use the existing ACT Controller.

##### ● Alarm confirmation

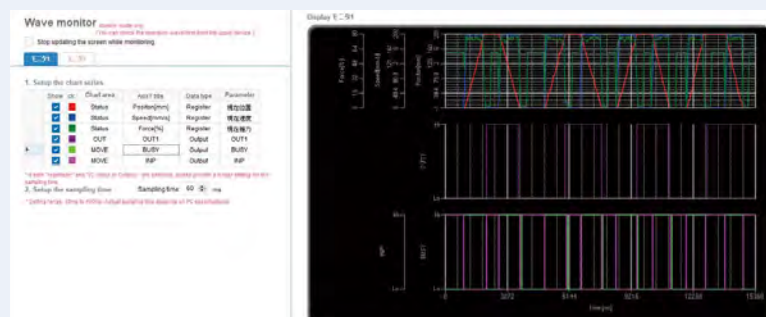


When an alarm is generated, the alarm details and countermeasures can be confirmed.



When an alarm is generated, the cumulative startup time of the controller can be confirmed.

##### ● Waveform monitoring



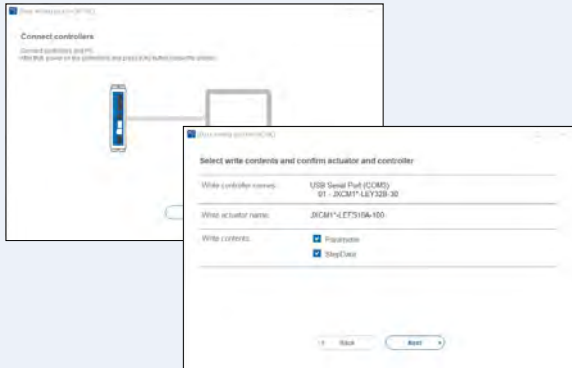
The position, speed, force, and input/output signals' waveform data during operation can be measured.

\* When using the ACT Controller 2 test operation function, waveform monitoring is not available.



ACT2
 Controller Setting Software ACT Controller 2

- The JXC-BC writing tool
- Customizable plug-in functions



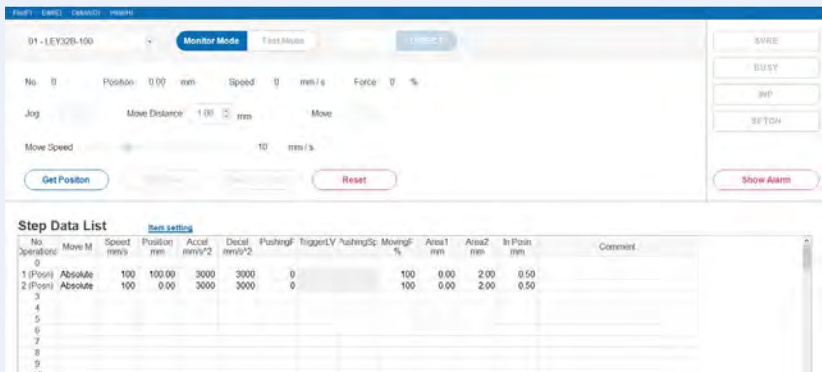
The writing tool can be used to write the connected actuator's parameters and step data to a JXC series blank controller.



Which plug-in functions are displayed as well as the display order are customizable. Customers can add the functions they require.

In normal mode, various other test operation methods (program operation, jogging, moving of the constant rate, etc.), signal status monitoring, one-touch switching between Japanese and English, and other functions are available.

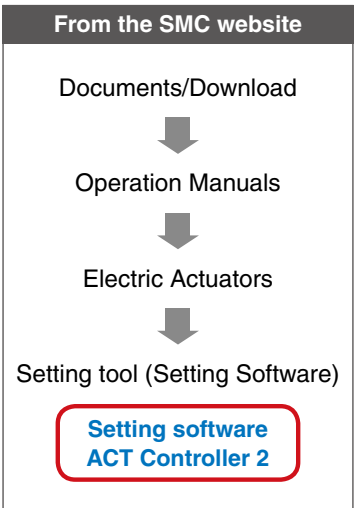
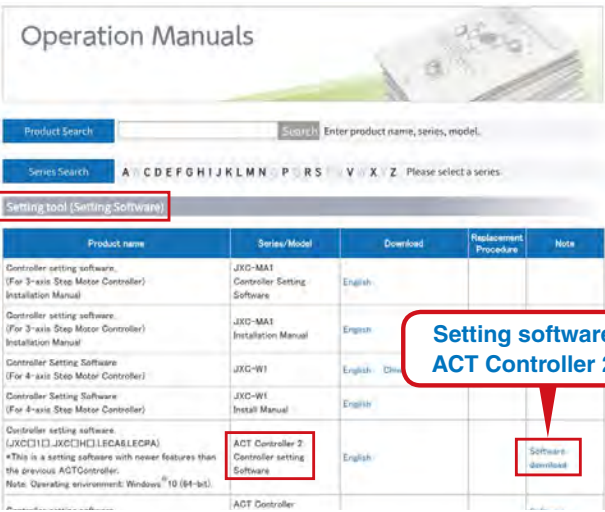
For immediate use, operate in easy mode.



Step data setting, various test operations, and status confirmation can be done on a single screen.

How to download the setting software

Click here for details.





## Step Data Input Type JXC5H/6H Series

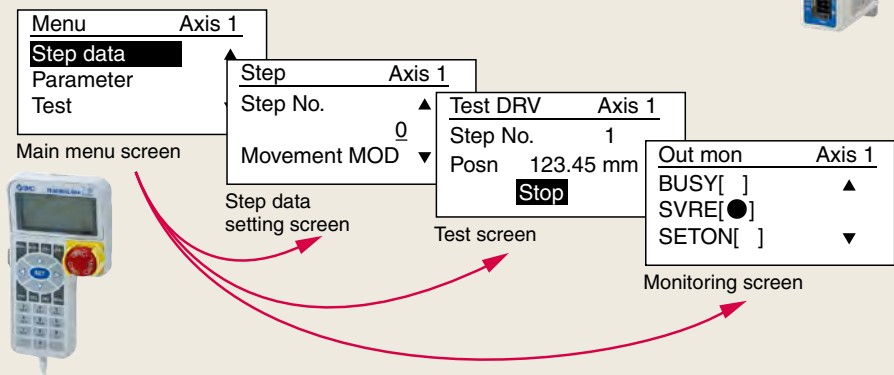
### Teaching Box

#### ◎ Normal Mode

- Multiple step data can be stored in the teaching box and transferred to the controller.
- Continuous test drive by up to 5 step data

#### Teaching box screen

- Each function (step data setting, test drive, monitoring, etc.) can be selected from the main menu.

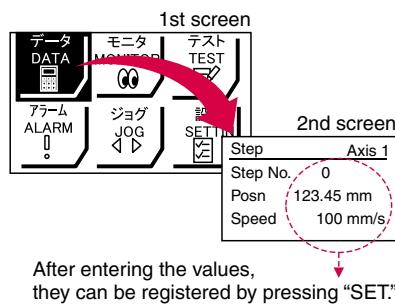


#### ◎ Easy Mode

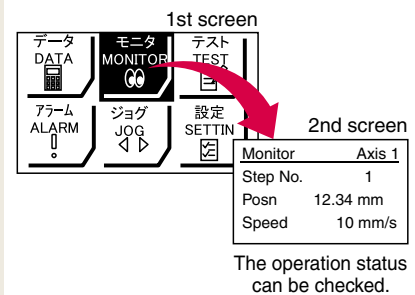
- The simple screen without scrolling promotes ease of setting and operation.
- Choose an icon from the first screen to select a function.
- Set the step data and check the monitor on the second screen.



#### Example of setting the step data



#### Example of checking the operation status



#### Teaching box screen

- Data can be set by inputting only the position and speed. (Other conditions are preset.)

| Step     | Axis 1   |
|----------|----------|
| Step No. | 0        |
| Posn     | 50.00 mm |
| Speed    | 200 mm/s |



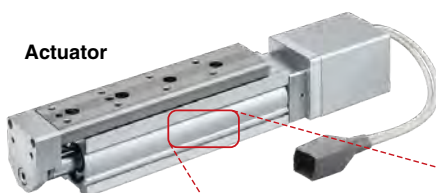
| Step     | Axis 1   |
|----------|----------|
| Step No. | 1        |
| Posn     | 80.00 mm |
| Speed    | 100 mm/s |

## The actuator and controller are provided as a set. (They can be ordered separately as well.)

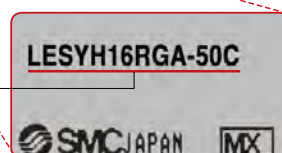
Confirm that the combination of the controller and actuator is correct.

<Check the following before use.>

- Check the actuator label for the model number. This number should match that of the controller.
- Check that the Parallel I/O configuration matches (NPN or PNP).



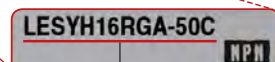
Actuator



①



Controller



①

②

## Function

| Item                            | Step data input type<br>JXC5H/6H                                                                                                                                                                            |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step data and parameter setting | <ul style="list-style-type: none"> <li>Input from controller setting software (PC)</li> <li>Input from teaching box</li> </ul>                                                                              |
| Step data "position" setting    | <ul style="list-style-type: none"> <li>Numerical value input from controller setting software (PC) or teaching box</li> <li>Input numerical value</li> <li>Direct teaching</li> <li>JOG teaching</li> </ul> |
| Number of step data             | 64 points                                                                                                                                                                                                   |
| Operation command (I/O signal)  | Step No. [IN <sup>+</sup> ] input ⇒ [DRIVE] input                                                                                                                                                           |
| Completion signal               | [INP] output                                                                                                                                                                                                |

## Setting Items

TB: Teaching box PC: Controller setting software

| Item                           |                           | Contents                                                                                | Easy Mode |    | Normal Mode                 | Step data input type<br>JXC5H/6H                                                       |
|--------------------------------|---------------------------|-----------------------------------------------------------------------------------------|-----------|----|-----------------------------|----------------------------------------------------------------------------------------|
|                                |                           |                                                                                         | TB        | PC | TB/PC                       |                                                                                        |
| Step data setting<br>(Excerpt) | Movement MOD              | Selection of "absolute position" and "relative position"                                | △         | ●  | ●                           | Set at ABS/INC                                                                         |
|                                | Speed                     | Transfer speed                                                                          | ●         | ●  | ●                           | Set in units of 1 mm/s                                                                 |
|                                | Position                  | [Position]: Target position<br>[Pushing]: Pushing start position                        | ●         | ●  | ●                           | Set in units of 0.01 mm                                                                |
|                                | Acceleration/Deceleration | Acceleration/deceleration during movement                                               | ●         | ●  | ●                           | Set in units of 1 mm/s <sup>2</sup>                                                    |
|                                | Pushing force             | Rate of force during pushing operation                                                  | ●         | ●  | ●                           | Set in units of 1 %                                                                    |
|                                | Trigger LV                | Target force during pushing operation                                                   | △         | ●  | ●                           | Set in units of 1 %                                                                    |
|                                | Pushing speed             | Speed during pushing operation                                                          | △         | ●  | ●                           | Set in units of 1 mm/s                                                                 |
|                                | Moving force              | Force during positioning operation                                                      | △         | ●  | ●                           | Set to 100%                                                                            |
|                                | Area output               | Conditions for area output signal to turn ON                                            | △         | ●  | ●                           | Set in units of 0.01 mm                                                                |
|                                | In position               | [Position]: Width to the target position<br>[Pushing]: How much it moves during pushing | △         | ●  | ●                           | Set to 0.5 mm or more<br>(Units: 0.01 mm)                                              |
| Parameter setting<br>(Excerpt) | Stroke (+)                | + side position limit                                                                   | ×         | ×  | ●                           | Set in units of 0.01 mm                                                                |
|                                | Stroke (-)                | - side position limit                                                                   | ×         | ×  | ●                           | Set in units of 0.01 mm                                                                |
|                                | ORIG direction            | Direction of the return to origin can be set.                                           | ×         | ×  | ●                           | Compatible                                                                             |
|                                | ORIG speed                | Speed during return to origin                                                           | ×         | ×  | ●                           | Set in units of 1 mm/s                                                                 |
|                                | ORIG ACC                  | Acceleration during return to origin                                                    | ×         | ×  | ●                           | Set in units of 1 mm/s <sup>2</sup>                                                    |
| Test                           | JOG                       |                                                                                         | ●         | ●  | ●                           | Continuous operation at the set speed can be tested while the switch is being pressed. |
|                                | MOVE                      |                                                                                         | ×         | ●  | ●                           | Operation at the set distance and speed from the current position can be tested.       |
|                                | Return to ORIG            |                                                                                         | ●         | ●  | ●                           | Compatible                                                                             |
|                                | Test drive                | Operation of the specified step data                                                    | ●         | ●  | ●<br>(Continuous operation) | Compatible                                                                             |
|                                | Forced output             | ON/OFF of the output terminal can be tested.                                            | ×         | ×  | ●                           | Compatible                                                                             |
| Monitor                        | DRV mon                   | Current position, speed, force, and the specified step data can be monitored.           | ●         | ●  | ●                           | Compatible                                                                             |
|                                | In/Out mon                | Current ON/OFF status of the input and output terminal can be monitored.                | ×         | ×  | ●                           | Compatible                                                                             |
| ALM                            | Status                    | Alarm currently being generated can be confirmed.                                       | ●         | ●  | ●                           | Compatible                                                                             |
|                                | ALM Log record            | Alarms generated in the past can be confirmed.                                          | ×         | ×  | ●                           | Compatible                                                                             |
| File                           | Save/Load                 | Step data and parameters can be saved, forwarded, and deleted.                          | ×         | ×  | ●                           | Compatible                                                                             |
| Other                          | Language                  | Can be changed to Japanese or English                                                   | ●         | ●  | ●                           | Compatible                                                                             |

△: Can be set from TB Ver. 2.\*\* (The version information is displayed on the initial screen.)

## Fieldbus Network

### EtherCAT/EtherNet/IP™/PROFINET

#### Direct Input Type

#### Step Motor Controller/JXC□ Series p. 40

Ether**CAT**®



EtherNet/IP®



PROFI**NET**®



#### Two types of operation command

**Step no. defined operation:** Operate using the preset step data in the controller.

**Numerical data defined operation:** The actuator operates using values such as position and speed from the PLC.

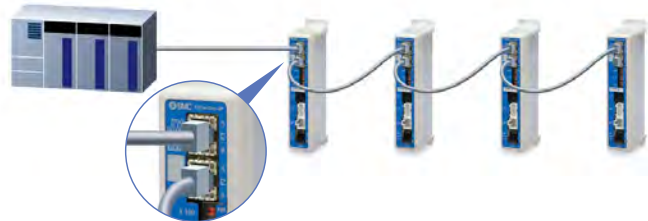
#### Numerical monitoring available

Numerical information, such as the current speed, current position, and alarm codes, can be monitored on the PLC.

#### Transition wiring of communication cables

Two communication ports are provided.

PLC



## Application

Communication protocols

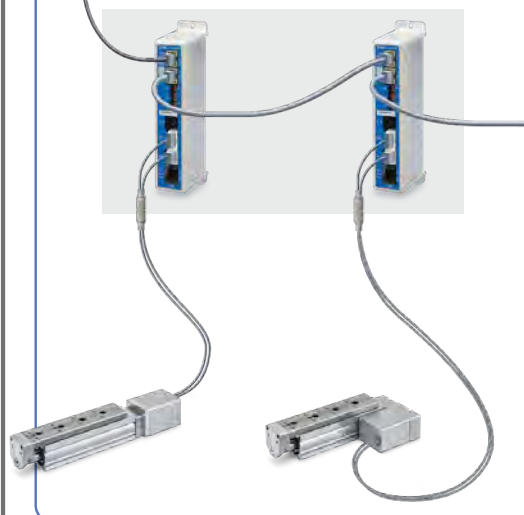
Ether**CAT**®

EtherNet/IP®

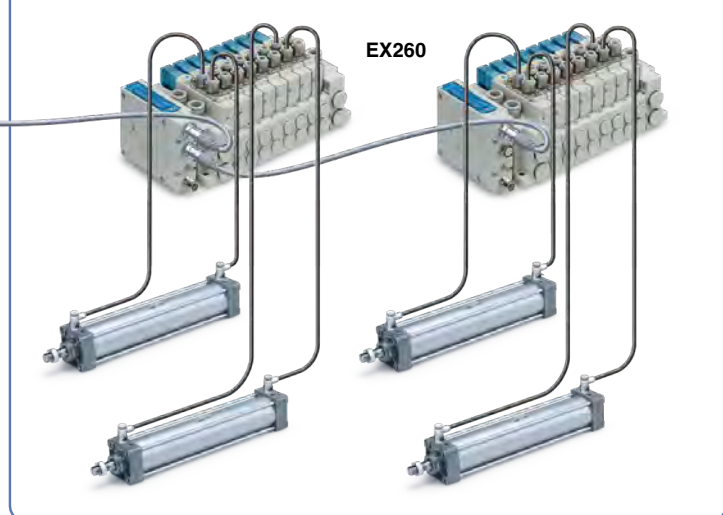
PROFI**NET**®



#### Electric Actuators

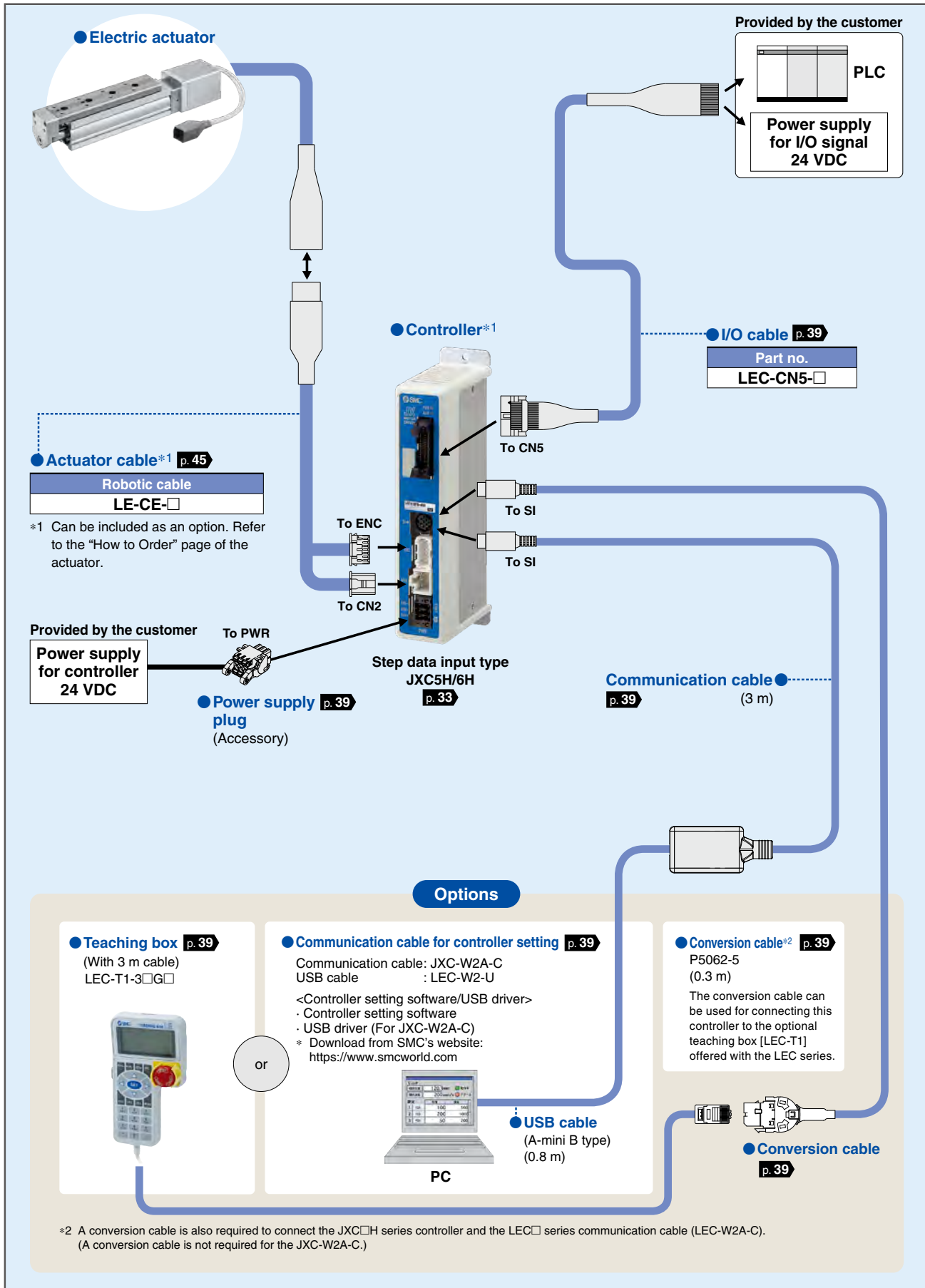


#### Air Cylinders



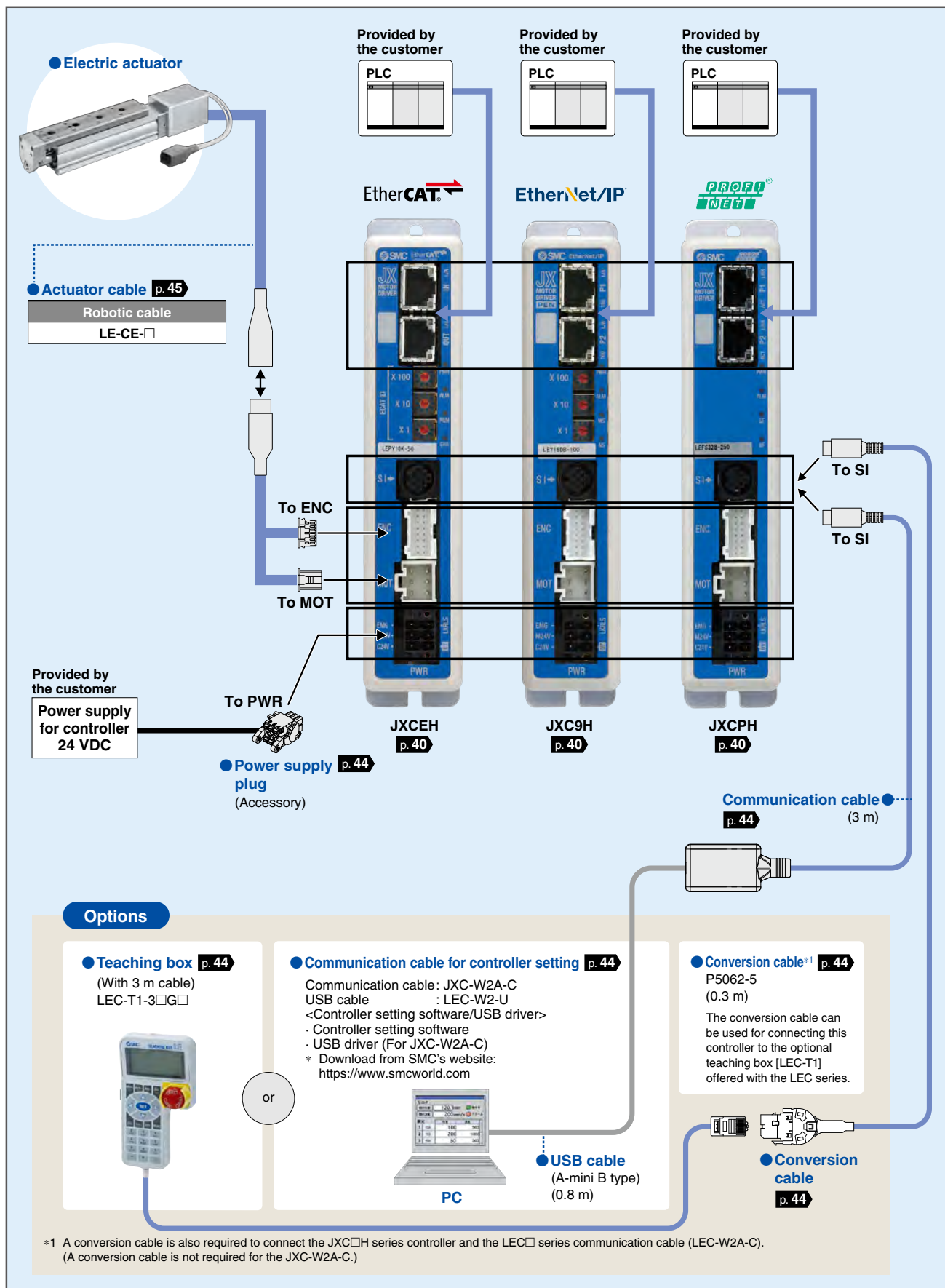
Both air and electric systems can be established under the same protocol.

## System Construction/General Purpose I/O





## System Construction/Fieldbus Network (EtherCAT/EtherNet/IP™/PROFINET Direct Input Type)

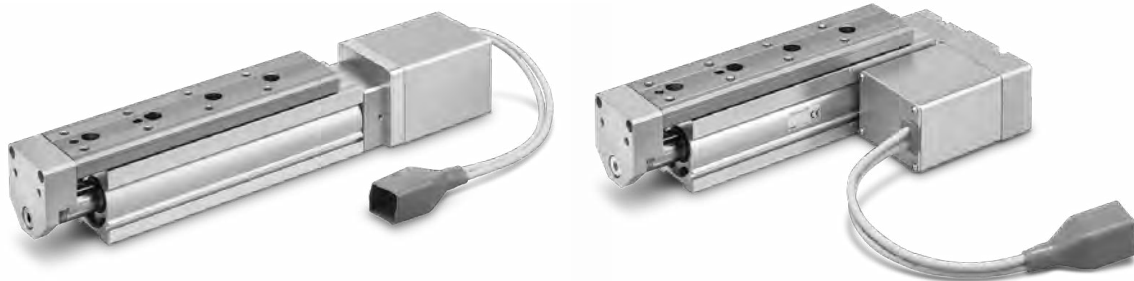


# Electric Actuator

## High Performance Slide Table/High Precision Type

### Slide Table/High Precision Type *LESYH□G Series*

Battery-less Absolute (Step Motor 24 VDC)



Pages refer to full catalog. Scan to view.

### High Performance Slide Table/High Precision Type *LESYH□G Series* p. 8

Battery-less Absolute (Step Motor 24 VDC)



|                                    |       |
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| Specifications .....               | p. 19 |
| Construction .....                 | p. 20 |
| Dimensions .....                   | p. 21 |
| Auto Switch Mounting .....         | p. 24 |
| Specific Product Precautions ..... | p. 28 |

### Controllers *JXC□ Series* p. 32

#### High Performance Controller (Step Data Input Type) *JXC5H/6H Series* Battery-less Absolute (Step Motor 24 VDC)



|                      |       |
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#### High Performance Step Motor Controller *JXCEH/9H/PH Series* Battery-less Absolute (Step Motor 24 VDC)



|                      |       |
|----------------------|-------|
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| Options .....        | p. 44 |
| Actuator Cable ..... | p. 45 |

Battery-less Absolute Encoder Type Specific Product Precautions .....

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CE/UKCA/UL-compliance List .....

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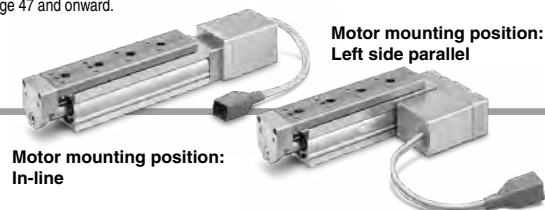
# High Performance Slide Table/ High Precision Type LESYH□G Series



RoHS

\* For details, refer to page 47 and onward.

## How to Order



LESYH **16** **D** **G** **A** - **50** **C** - **R1** **C5H73**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

For details on controllers, refer to the next page.

### ① Size

|    |
|----|
| 8  |
| 16 |
| 25 |

### ② Motor mounting position/Motor cover direction (For size 8)

| Symbol    | Motor mounting position | Motor cover direction |
|-----------|-------------------------|-----------------------|
| <b>D1</b> | In-line                 | Left side             |
| <b>D2</b> |                         | Right side            |
| <b>D3</b> |                         | Top side              |
| <b>D4</b> |                         | Bottom side           |
| <b>R</b>  | Right side parallel     | —                     |
| <b>L</b>  | Left side parallel      | —                     |

### ② Motor mounting position (For sizes 16 and 25)

|          |                     |
|----------|---------------------|
| <b>D</b> | In-line             |
| <b>R</b> | Right side parallel |
| <b>L</b> | Left side parallel  |

### ③ Motor type

| Symbol   | Type                                     | Compatible controllers                    |
|----------|------------------------------------------|-------------------------------------------|
| <b>G</b> | High performance (Battery-less absolute) | JXC5H<br>JXC6H<br>JXCEH<br>JXC9H<br>JXCPH |

### ④ Lead [mm]

|          | Size |    |    |
|----------|------|----|----|
|          | 8    | 16 | 25 |
| <b>A</b> | 10   | 12 | 16 |
| <b>B</b> | 5    | 6  | 8  |
| <b>C</b> | 2.5  | —  | —  |

### ⑤ Stroke [mm]

|            | Size |    |    |
|------------|------|----|----|
|            | 8    | 16 | 25 |
| <b>50</b>  | ●    | ●  | ●  |
| <b>75</b>  | ●    | —  | —  |
| <b>100</b> | —    | ●  | ●  |
| <b>150</b> | —    | —  | ●  |

### ⑥ Motor option

|          |              |
|----------|--------------|
| <b>C</b> | Without lock |
| <b>W</b> | With lock    |

### ⑦ Connector/Actuator cable type/length

| Robotic cable |               |           |      | [m] |
|---------------|---------------|-----------|------|-----|
| <b>Nil</b>    | Without cable | <b>R8</b> | 8*1  |     |
| <b>R1</b>     | 1.5           | <b>RA</b> | 10*1 |     |
| <b>R3</b>     | 3             | <b>RB</b> | 15*1 |     |
| <b>R5</b>     | 5             | <b>RC</b> | 20*1 |     |

### ⑧ Controller

|              |                    |
|--------------|--------------------|
| <b>Nil</b>   | Without controller |
| <b>C□H□□</b> | With controller    |

**C** **H** **7** **3**

### Interface (Communication protocol/Input/Output)

|          |                      |
|----------|----------------------|
| <b>5</b> | Parallel input (NPN) |
| <b>6</b> | Parallel input (PNP) |
| <b>E</b> | EtherCAT             |
| <b>9</b> | EtherNet/IP™         |
| <b>P</b> | PROFINET             |

### Mounting

|            |                |
|------------|----------------|
| <b>7</b>   | Screw mounting |
| <b>8*2</b> | DIN rail       |

### Number of axes/Special specification

|          |                              |
|----------|------------------------------|
| <b>H</b> | 1 axis/High performance type |
|----------|------------------------------|

### I/O cable

| Symbol     | Type              | Applicable interface                         |
|------------|-------------------|----------------------------------------------|
| <b>Nil</b> | Without accessory | —                                            |
| <b>1</b>   | I/O cable (1.5 m) | Parallel input (NPN)<br>Parallel input (PNP) |
| <b>3</b>   | I/O cable (3 m)   |                                              |
| <b>5</b>   | I/O cable (5 m)   |                                              |

\*1 Produced upon receipt of order

\*2 The DIN rail is not included. It must be ordered separately.

For details on auto switches, refer to pages 24 to 27.



Automation - Controls - Process



Leading global pneumatics and industrial automation components manufacturer dedicated to sustainable factory automation.

Serving the industries of semiconductor, food & packaging, life science, automotive, machine tool, process, natural resource, and general needs for automation, controls, and process.

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  - Sensors & Switches
  - Connectors
  - Process Gas
  - Electrical Products
  - Temperature Control
  - Vacuum
  - Valves
  - Air Preparation
  - Static Control
  - Chemical Handling
  - Specialty Products

### North American Support

- 30 North American Locations
- Configure, Validate, & Download 3D & 2D Models from [www.smcusa.com/products](http://www.smcusa.com/products)
- 2.6 Million sqft North American Headquarters of Engineering, Production, Central Distribution & Administration

### Sales Offices

#### WEST

Austin  
Dallas  
Denver  
El Paso  
Los Angeles  
Phoenix  
Portland  
San Jose

#### CANADA

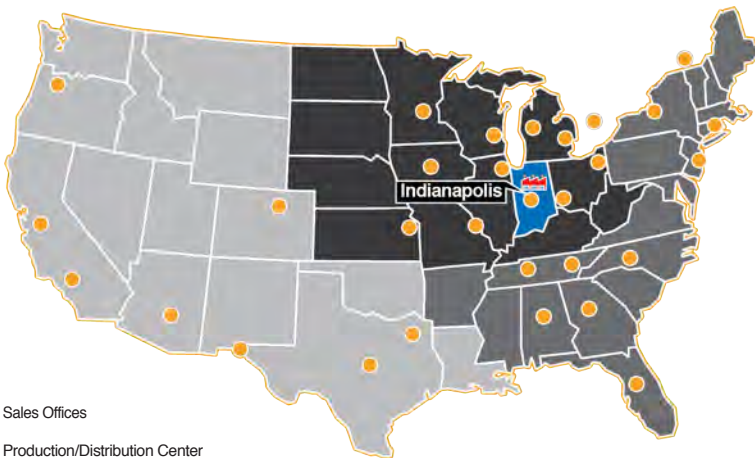
Montreal  
Toronto

#### CENTRAL

Chicago  
Cincinnati  
Cleveland  
Detroit  
Des Moines  
Grand Rapids  
Indianapolis  
Kansas City  
Milwaukee  
Minneapolis  
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