

EC-S7□R

Simple dust-proof

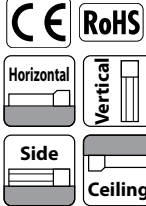
Side-mounted Motor

Body width 73 mm

24v Stepper motor

Model Specification Items

| | | | | | | | | | | |
|-----------|---|-----------|------------------------------------|----------------------|---|----------------------|------------------------------|------------------------|--|--------------------------------------|
| EC | — | S7 | <input type="text"/> | R | — | <input type="text"/> | — | <input type="text"/> | — | <input type="text"/> |
| Series | | Type | Lead | Specification | | Stroke | | Cable Length | | Options |
| | | | S 24mm H 16mm M 8mm L 4mm | R Side-mounted motor | | 50 ↓ 500 | 50mm 500mm (per 50mm) | 0 ↓ 1 ↓ 10 | Terminal type with connector 1m ↓ 10m | Refer to the option price list below |



(Note) The above photo shows motor side-mounted to the left (ML).

- POINT Selection Notes**
- (1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
 - (2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P109 for cautions.
 - (3) Depending on the ambient operating temperature, duty control is necessary. Please refer to P109 for cautions.
 - (4) Special attention needs to be paid to the mounting orientation. Please refer to P33 for details.
 - (5) Reference value of the overhang load length is under 280mm in the Ma, Mb and Mc directions. Please refer to the illustration on P35 for the overhang load length.
 - (6) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Options

| Name | Option code | Reference page |
|---|-------------|----------------|
| Brake | B | See P.101 |
| Foot bracket | FT | See P.103 |
| Motor side-mounted to the left (Note 1) | ML | See P.105 |
| Motor side-mounted to the right (Note 1) | MR | See P.105 |
| Non-motor end specification | NM | See P.108 |
| PNP specification | PN | See P.108 |
| Split motor and controller power supply specification | TMD2 | See P.109 |
| Battery-less absolute encoder | WA | See P.109 |
| Wireless communication specification | WL | See P.109 |
| Wireless axis-operation specification | WL2 | See P.109 |

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Stroke

| Stroke (mm) | EC-S7□R | Stroke (mm) | EC-S7□R |
|-------------|---------|-------------|---------|
| 50 | ○ | 300 | ○ |
| 100 | ○ | 350 | ○ |
| 150 | ○ | 400 | ○ |
| 200 | ○ | 450 | ○ |
| 250 | ○ | 500 | ○ |

Cable length

| Cable code | Cable length |
|------------|-------------------------------|
| 0 | No cable (connector supplied) |
| 1 ~ 3 | 1 ~ 3m |
| 4 ~ 5 | 4 ~ 5m |
| 6 ~ 10 | 6 ~ 10m |

(Note) Robot cables.

Main specifications

| Item | | Description | | | | |
|-------------------------------------|-------------------------------------|--|-----|-----|-----|-----|
| Lead | Ball screw lead (mm) | 24 | 16 | 8 | 4 | |
| | Payload | Max. payload (kg) (energy-saving disabled) | 37 | 46 | 51 | 51 |
| | | Max. payload (kg) (energy-saving enabled) | 18 | 35 | 40 | 40 |
| Horizontal | Speed/acceleration/deceleration | Max. speed (mm/s) | 860 | 700 | 420 | 190 |
| | | Min. speed (mm/s) | 30 | 20 | 10 | 5 |
| | | Rated acceleration/deceleration (G) | 0.3 | 0.3 | 0.3 | 0.3 |
| | | Max. acceleration/deceleration (G) | 1 | 1 | 1 | 1 |
| Vertical | Payload | Max. payload (kg) (energy-saving disabled) | 3 | 8 | 16 | 19 |
| | | Max. payload (kg) (energy-saving enabled) | 2 | 5 | 10 | 15 |
| | Speed/acceleration/deceleration | Max. speed (mm/s) | 860 | 700 | 350 | 175 |
| Min. speed (mm/s) | | 30 | 20 | 10 | 5 | |
| Rated acceleration/deceleration (G) | | 0.3 | 0.3 | 0.3 | 0.3 | |
| Max. acceleration/deceleration (G) | | 0.5 | 0.5 | 0.5 | 0.5 | |
| Push force | Max. thrust force when pushing (N)* | 139 | 209 | 418 | 836 | |
| | Max. speed when pushing (mm/s) | 20 | 20 | 20 | 20 | |
| Brake | Brake specification | Non-excitation actuating solenoid brake | | | | |
| | Brake holding force (kgf) | 3 | 8 | 16 | 19 | |
| Stroke | Min. stroke (mm) | 50 | 50 | 50 | 50 | |
| | Max. stroke (mm) | 500 | 500 | 500 | 500 | |
| | Stroke pitch (mm) | 50 | 50 | 50 | 50 | |

* Speed limitation applies to push motion. See the manual or contact IAI.

| Item | Description |
|--|---|
| Driving system | Ball screw φ12mm, Rolling C10 |
| Positioning repeatability | ±0.05mm |
| Lost motion | - |
| Base | Dedicated aluminum extruded material(A6063SS-T5 or equivalent) Black alumite treatment |
| Linear guide | Linear motion infinite circulating type |
| Static allowable moment | Ma: 79N·m |
| | Mb: 114N·m |
| | Mc: 157N·m |
| Dynamic allowable moment (Note 2) | Ma: 17N·m |
| | Mb: 25N·m |
| | Mc: 34N·m |
| Ambient operation temperature/humidity | 0~40°C, RH 85% or less (Non-condensing) |
| Degree of protection | IP20 |
| Vibration & shock resistance | 4.9m/s ² 100Hz or less |
| Overseas standards | CE Marking, RoHS (Restriction of Hazardous Substances) |
| Motor type | Stepper motor |
| Encoder type | Incremental / battery-less absolute |
| Number of encoder pulses | 800 pulse/rev |

(Note 2) Based on the standard rated operation life of 5,000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P36.

Table of Payload by Speed and Acceleration

■ Energy-saving disabled The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|-----|-----|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 37 | 22 | 16 | 14 | 3 | 3 | |
| 200 | 37 | 22 | 16 | 14 | 3 | 3 | |
| 420 | 34 | 20 | 16 | 14 | 3 | 3 | |
| 640 | 18 | 13 | 9 | 7.5 | 3 | 3 | |
| 860 | 9 | 6 | 4 | 3 | 1.5 | 1 | |

Lead 16

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|----|-----|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 46 | 35 | 28 | 27 | 8 | 8 | |
| 140 | 46 | 35 | 28 | 27 | 8 | 8 | |
| 280 | 46 | 35 | 25 | 24 | 8 | 8 | |
| 420 | 34 | 25 | 15 | 10 | 5 | 4.5 | |
| 560 | 20 | 14 | 8 | 6 | 3 | 2.5 | |
| 700 | 10 | 5 | 3 | 1 | 1.5 | 1 | |

Lead 8

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|----|-----|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 51 | 45 | 40 | 40 | 16 | 16 | |
| 70 | 51 | 45 | 40 | 40 | 16 | 16 | |
| 140 | 51 | 40 | 38 | 35 | 16 | 16 | |
| 210 | 51 | 35 | 30 | 24 | 10 | 9.5 | |
| 280 | 36 | 20 | 15 | 15 | 8 | 7 | |
| 350 | 20 | 5 | 4 | | 3 | 2 | |
| 420 | 2 | | | | | | |

Lead 4

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|----|------|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 51 | 45 | 40 | 40 | 19 | 19 | |
| 35 | 51 | 45 | 40 | 40 | 19 | 19 | |
| 70 | 51 | 45 | 40 | 40 | 19 | 19 | |
| 105 | 51 | 45 | 40 | 35 | 19 | 19 | |
| 140 | 45 | 35 | 30 | 25 | 12.5 | 12 | |
| 175 | 30 | 16 | | | | | |
| 190 | 5 | | | | | | |

■ Energy-saving enabled The unit for payload is kg. Operations in the blank locations are not possible.

Lead 24

| Orientation | Horizontal | | | Vertical |
|--------------|------------------|-----|-----|----------|
| | Acceleration (G) | | | |
| Speed (mm/s) | 0.3 | 0.7 | 0.3 | |
| 0 | 18 | 10 | 2 | |
| 200 | 18 | 10 | 2 | |
| 420 | 18 | 10 | 2 | |
| 640 | 10 | 2 | 1 | |
| 800 | 1 | | | |

Lead 16

| Orientation | Horizontal | | | Vertical |
|--------------|------------------|-----|-----|----------|
| | Acceleration (G) | | | |
| Speed (mm/s) | 0.3 | 0.7 | 0.3 | |
| 0 | 35 | 20 | 5 | |
| 140 | 35 | 20 | 5 | |
| 280 | 25 | 12 | 3 | |
| 420 | 15 | 6 | 1.5 | |
| 500 | 7.5 | 1.5 | 0.5 | |
| 560 | 2 | | | |

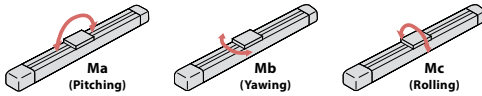
Lead 8

| Orientation | Horizontal | | | Vertical |
|--------------|------------------|-----|-----|----------|
| | Acceleration (G) | | | |
| Speed (mm/s) | 0.3 | 0.7 | 0.3 | |
| 0 | 40 | 25 | 10 | |
| 70 | 40 | 25 | 10 | |
| 140 | 40 | 25 | 7 | |
| 210 | 25 | 14 | 4 | |
| 280 | 5 | | 0.5 | |

Lead 4

| Orientation | Horizontal | | | Vertical |
|--------------|------------------|-----|-----|----------|
| | Acceleration (G) | | | |
| Speed (mm/s) | 0.3 | 0.7 | 0.3 | |
| 0 | 40 | 30 | 15 | |
| 35 | 40 | 30 | 15 | |
| 70 | 40 | 30 | 15 | |
| 105 | 40 | 30 | 8 | |
| 120 | 15 | 6 | 2 | |

■ Direction of slider type moment

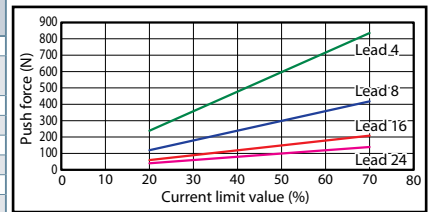


■ Stroke and maximum speed

| Lead (mm) | Energy-saving mode | 50-300 (per 50mm) | 350 (mm) | 400 (mm) | 450 (mm) | 500 (mm) |
|-----------|--------------------|-------------------|-----------|----------|----------|----------|
| 24 | Disabled | 860 | 774 | 619 | 506 | |
| | Enabled | 800 <640> | 774 <640> | 619 | 506 | |
| 16 | Disabled | 700 | 631 | 492 | 395 | 323 |
| | Enabled | 560 <500> | 492 | 395 | 323 | |
| 8 | Disabled | 420 <350> | 322 | 251 | 200 | 164 |
| | Enabled | 280 | 251 | 200 | 164 | |
| 4 | Disabled | 190 <175> | 163 | 126 | 101 | 83 |
| | Enabled | 10 | 101 | 83 | | |

(Note) Figures in <> represent vertical operations. (Unit is mm/s)

■ Correlation between push force and current limit value

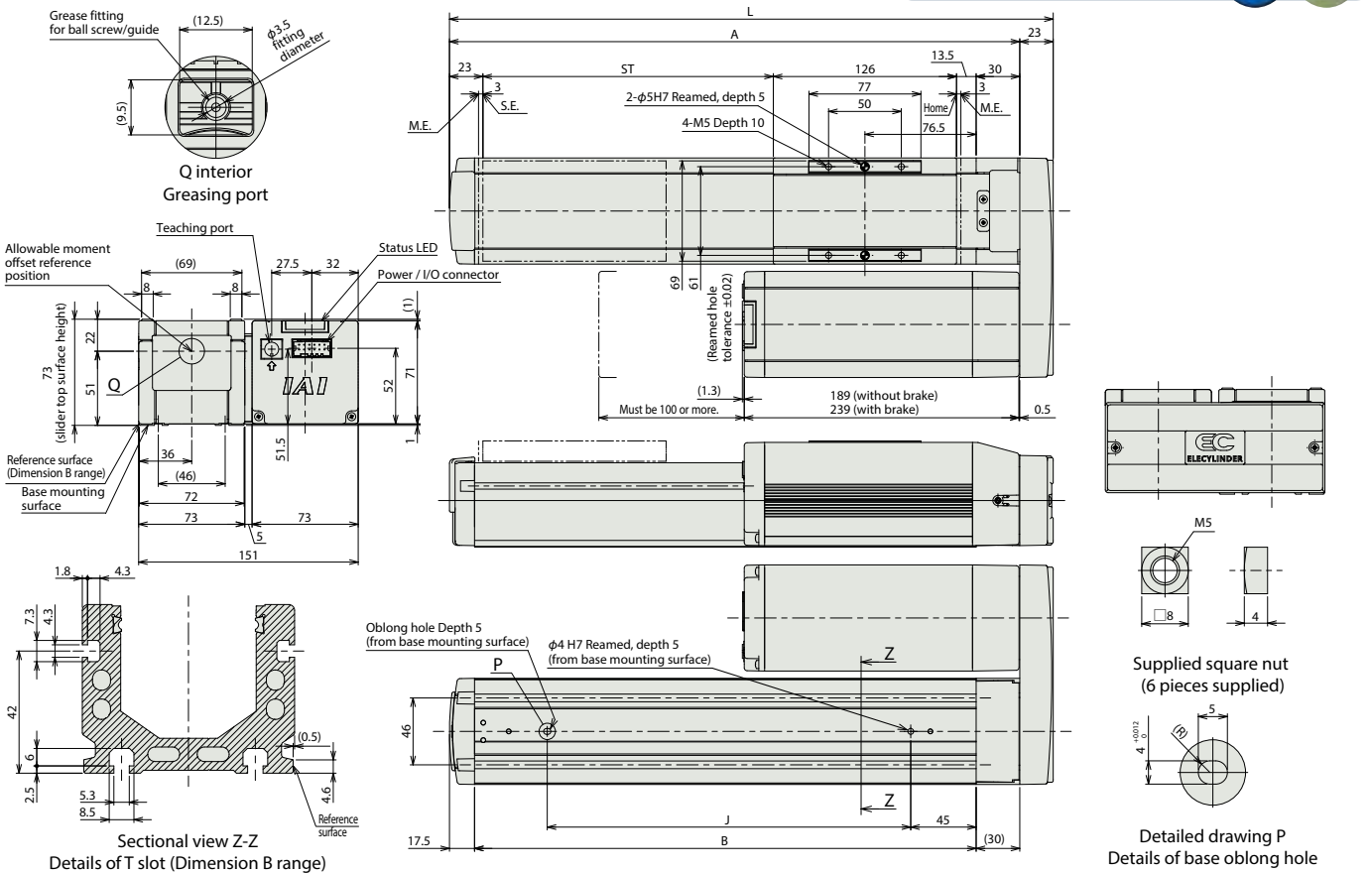


■ Dimensions

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The drawing below represents motor side-mounted to the left (ML).

CAD drawings can be downloaded from our website.

www.intelligentactuator.com



■ Dimensions by stroke

| Stroke | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L | 265.5 | 315.5 | 365.5 | 415.5 | 465.5 | 515.5 | 565.5 | 615.5 | 665.5 | 715.5 |
| A | 242.5 | 292.5 | 342.5 | 392.5 | 442.5 | 492.5 | 542.5 | 592.5 | 642.5 | 692.5 |
| B | 195 | 245 | 295 | 345 | 395 | 445 | 495 | 545 | 595 | 645 |
| J | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 |

■ Mass by stroke

| Stroke | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | |
|-------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Weight (kg) | without brake | 4.2 | 4.4 | 4.7 | 4.9 | 5.2 | 5.4 | 5.7 | 5.9 | 6.2 | 6.4 |
| | with brake | 4.7 | 4.9 | 5.2 | 5.4 | 5.7 | 5.9 | 6.2 | 6.4 | 6.7 | 6.9 |

■ Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P117 for details.