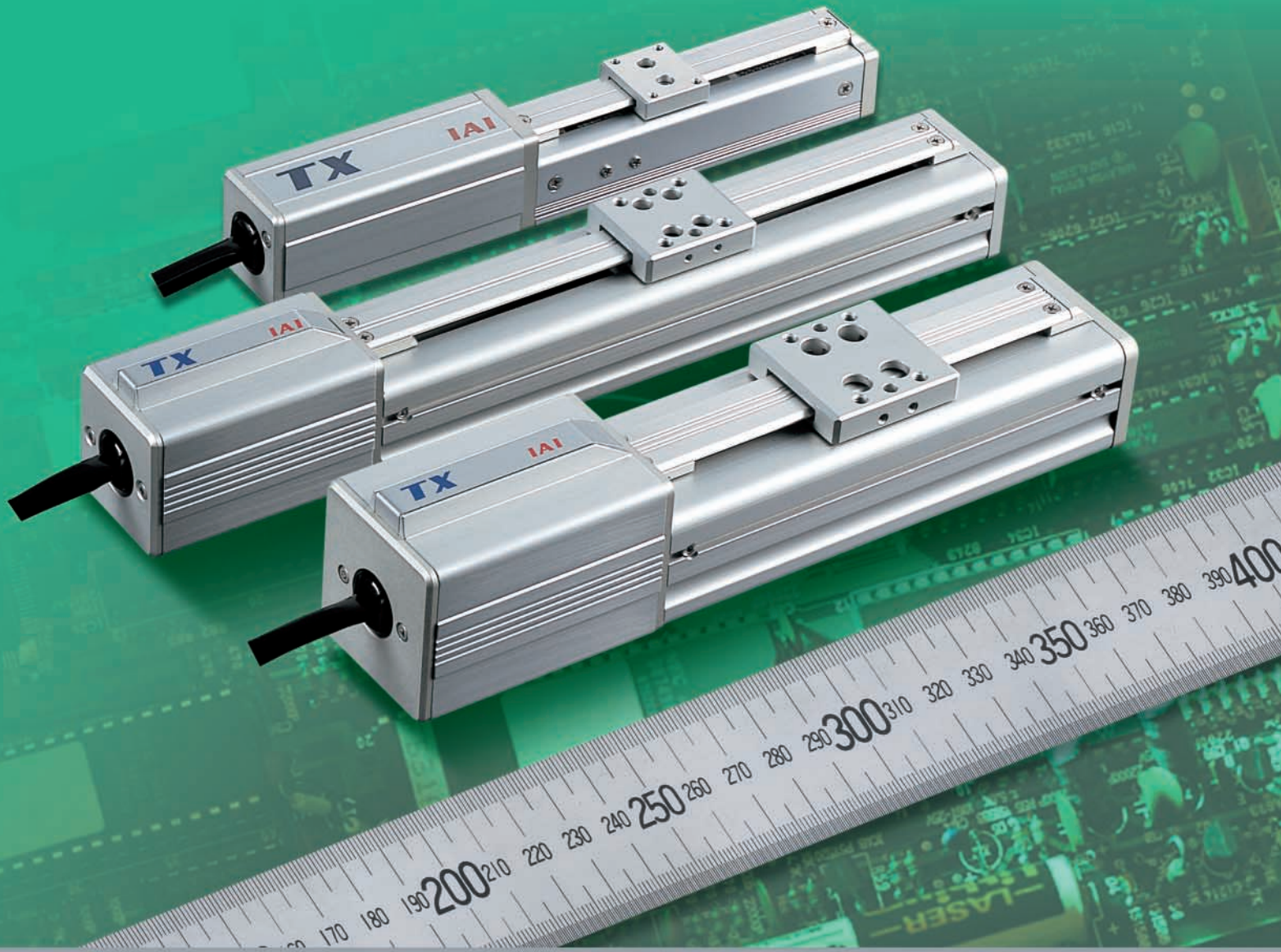


# IAI

Quality and Innovation

GB



# TX

Tiny Actuator

# Introducing a palm-size, ultra compact ballscrew actuator with conventional stepper motor!

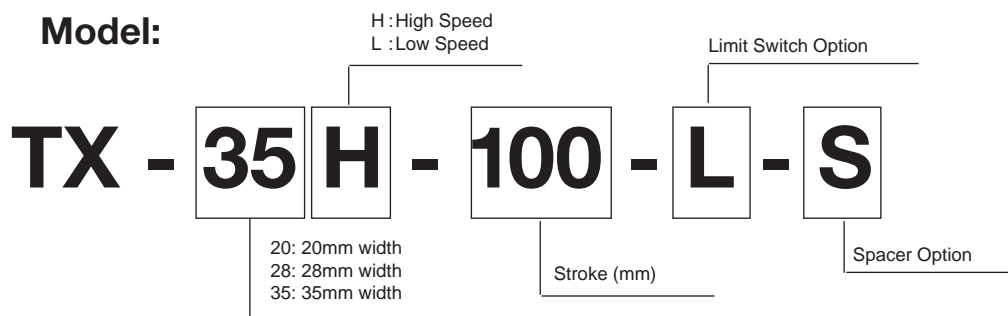
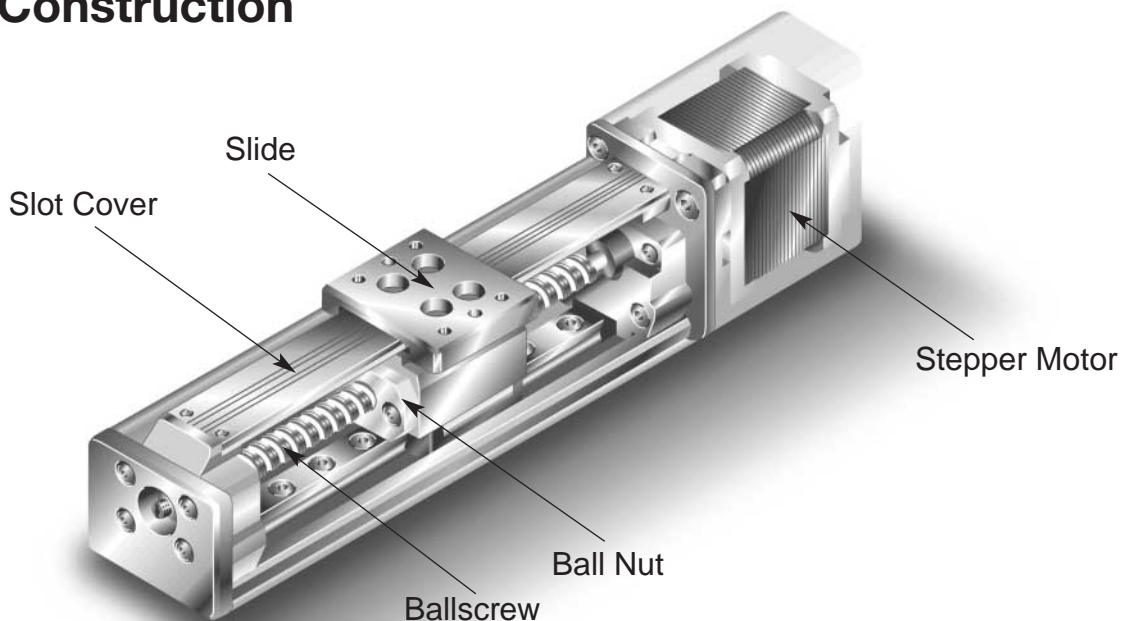
## TX-20/28/35

### Tiny Actuator

#### Features

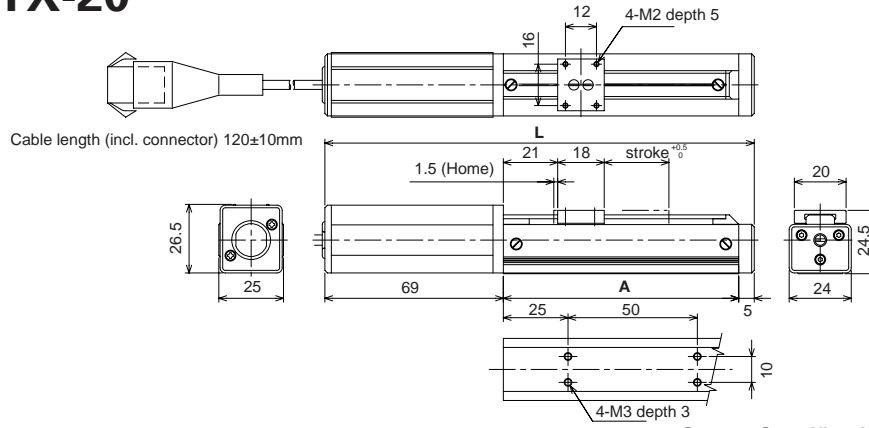
- Micro-sized component design excels in space efficiency and mounting possibilities
- High performance at an affordable price
- Built-in precision linear guide allows the ability for the unit to take high moment loads.
- Conventional 2-phase stepper motor for various drivers

#### Actuator Construction



# Dimensions

## TX-20



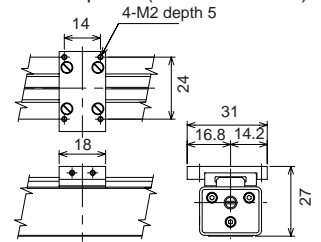
Cable length (incl. connector) 120±10mm

stroke (mm)	25	50
L	165	190
A	91	116
Weight(kg)	0.20	0.23

### Sensor Specification

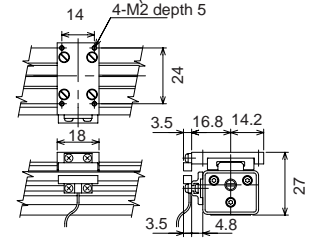
Switch	Proximity Switch, N/O
Max. Switching Capacity	10W/0.3A
Max. Voltage	AC125V
Min. Applicable Load	10μA 10μV
Length of lead	10cm

### Slide Spacer (Model TXA-101)



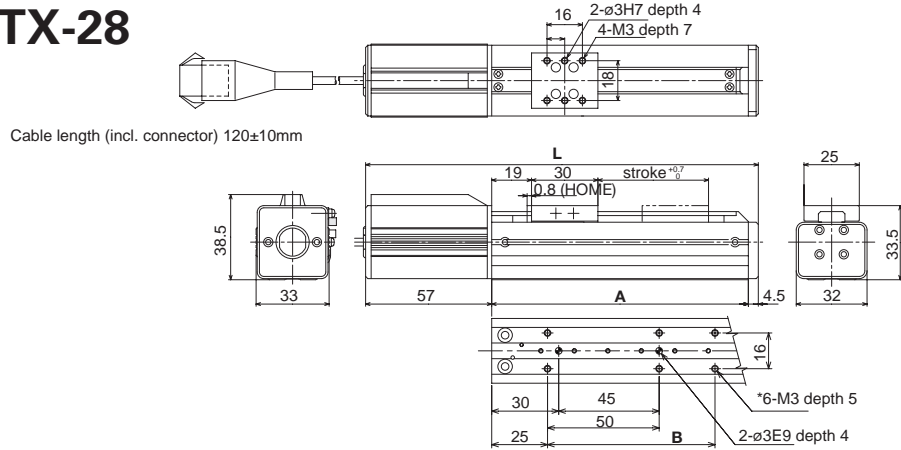
(Note) Uses same mounting plate for the sensor unit.

### Sensor Unit (Model TXS-002/003)



(Note) Uses same mounting plate for the sensor unit.

## TX-28



Cable length (incl. connector) 120±10mm

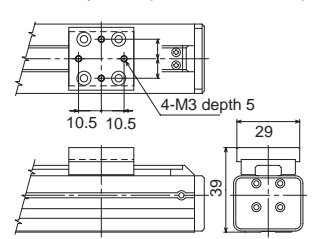
stroke (mm)	25	50	75	100
L	152.5	177.5	202.5	227.5
A	91	116	141	156
B	50	50	75	100
Weight(kg)	0.36	0.38	0.41	0.44

### Sensor Specification

Switch	Proximity Switch, N/O
Max. Switching Capacity	10W/0.3A
Max. Voltage	AC125V
Min. Applicable Load	10μA 10μV
Length of lead	10cm

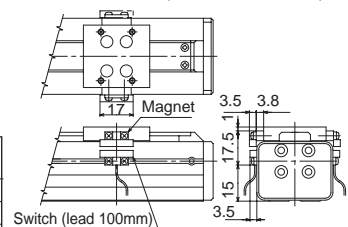
\*25 and 50mm strokes have a total of 4 M3 holes for frame mounting.

### Slide Spacer (Model TXA-201)



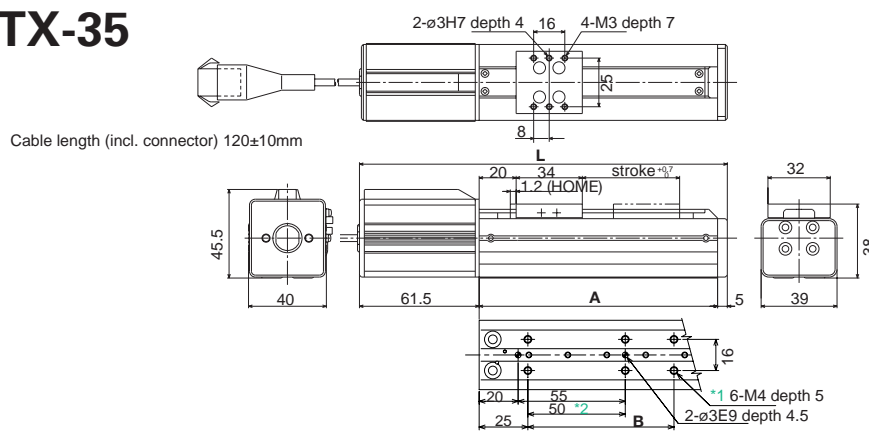
(Note) Uses same mounting plate for the sensor unit.

### Sensor Unit (Model TXS-001)



(Note) Uses same mounting plate for the sensor unit.

## TX-35



Cable length (incl. connector) 120±10mm

stroke (mm)	50	75	100	125	150	200	250	300
L	189	214	239	264	289	339	389	439
A	122.5	147.5	172.5	197.5	222.5	272.5	322.5	372.5
B	50	75	100	125	150	200	125x2P	150x2P
Weight(kg)	0.55	0.58	0.62	0.67	0.71	0.80	0.88	0.96

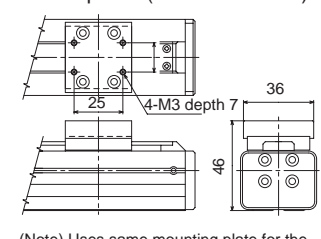
### Sensor Specification

Switch	Proximity Switch, N/O
Max. Switching Capacity	10W/0.3A
Max. Voltage	AC125V
Min. Applicable Load	10μA 10μV
Length of lead	10cm

\*1 50mm stroke has a total of 4 M4 holes for frame mounting. 250 and 300mm strokes are with 6-M4 depth 3.

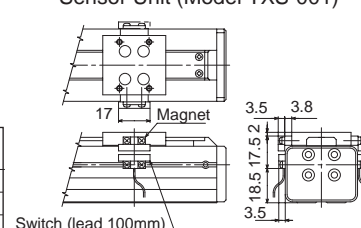
\*2 50 and 300mm strokes have no mounting holes in this position.

### Slide Spacer (Model TXA-301)



(Note) Uses same mounting plate for the sensor unit.

### Sensor Unit (Model TXS-001)

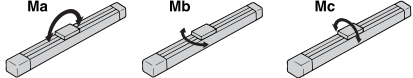
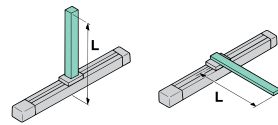


(Note) Uses same mounting plate for the sensor unit.

# Actuator Specifications

Type	TX-20L	TX-28L<H>	TX-35L<H>
Encoder Type	Incremental		
Screw Lead (mm)	2<6>		
Stroke (mm)	25   50	25   50   75   100	50   75   100   125   150   200   250   300
Maximum Speed (mm/sec)	50<150>		
Payload	0.5kg Horizontal, 0.25kg Vertical	1.5<0.6>kg Horizontal, 0.7<0.3>kg Vertical	3.0<1.5>kg Horizontal, 1.5<0.7>kg Vertical
Thrust (N)	25		158<53>
Repeatability (mm)	±0.02		±0.02<±0.05>
Homing Accuracy (mm)	±0.02		±0.02<±0.06>
Ballscrew	ø6mm Rolled		
Backlash	0.05mm or less		
Guide	Linear Guide		
Load Moment	Ma:0.11Nm, Mb:0.12Nm, Mc:0.14Nm	Ma:0.25Nm, Mb:0.25Nm, Mc:0.5Nm	Ma:0.5Nm, Mb:0.5Nm, Mc:1.0Nm
Overhang Load Length	Ma: 40mm or less, Mb•Mc: 12mm or less	Ma: 60mm or less, Mb•Mc: 50mm or less	Ma: 75mm or less, Mb•Mc: 60mm or less
Base	Exclusive Aluminium Extrusion(A6N01S-T5 equivalent), White Alumite Treatment		
Option	Motor Robot Cable (5m) CB-TX-MA050-RB		
Sensor Unit	TXS-003   TXS-002	TXS-001	
Slide Spacer	TXA-101	TXA-201	TXA-301

## Notes

<b>Payload</b>	Maximum payload will take 0.1sec to reach the maximum speed. Load uniformly distributed on the slide. Base affixed to a flat, strong frame.
<b>Maximum Thrust</b>	Maximum value on the centre of the ballscrew.
<b>Moment</b>	Ma, Mb, Mc moments must be at or below the specification values. 
<b>Overhang Load Length</b>	The centre of gravity exists at the halfway point of the overhang load length. 

## Motor Specifications

Type	TX-20	TX-28	TX-35	
Electrical	Fundamental Step Angle	1.8°		
	Driving Method	Unipolar 4-2 Phase On		
	Motor Rated Voltage	DC7.0V	DC1.0V	DC2.64V
	Motor Rated Current	DC0.35A	DC1.5A	DC1.6A
	Winding Resistance	20Ω±10%	0.7Ω±15%	1.65Ω±10%
	Winding Inductance	4.3mH±20% (1V 1kHz)	0.35mH±30% (1V 1kHz)	0.83mH±20% (1V 1kHz)
	Insulation Class	Class B (excluding lead wire)		Class E
Performance	Dielectric Strength	500V AC 1 Min.		
	Positional Accuracy	1.8°±5%		
	Step Position Accuracy	1.8°±5%		
	Motor Holding Torque	0.02Nm min. at 2 phase on 3.5A/phase	0.04Nm min. at 2 phase on 1.5A/phase	0.118Nm min. at 2 phase on 1.6A/phase
	Detent Torque	0.118x10 <sup>-2</sup> Nm Min.	0.025x10 <sup>-1</sup> Nm Min.	0.353x10 <sup>-2</sup> Nm Min.
	Max Starting Pulse Rate	2 Phase 1400pps / 1-2Phase 3000pps NOM.		2 Phase 1800pps / 1-2Phase 3800pps NOM
Mechanical	Temperature Rise	80°C Max.	60°C Max. at 1000PPS	80°C Max. at 2 phase on DC2.54V
	Rotar Inertia	4x10 <sup>-7</sup> kg-m <sup>2</sup>	8x10 <sup>-7</sup> kg-m <sup>2</sup>	20x10 <sup>-7</sup> kg-m <sup>2</sup>
	Shaft Runout	0.05mm T.I.R. Max.		0.025mm T.I.R. Max.
	Radial Play	0.03mm Max. / 4.904N Load	0.025mm Max. / 4.9N Load	0.02mm Max. / 4.904N Load
	Thrust Play	0.075mm Max. / 9.807N Load	0.075mm Max. / 9.8N Load	0.02mm Max. / 8.826N Load
Environment	Weight	0.085kg	0.15kg	0.25kg
	Operating Temp. Range	-20°C ~ +50°C		-20°C ~ +50°C
	Operating Humidity Range	5%RH ~ 95%RH		-40°C ~ +70°C
Storage Temp. Range	-40°C ~ +70°C			

## Local Distributor



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