Zaber Technologies Inc.
#2 - 605 West Kent Ave.
Vancouver, BC

1-604-569-3780 *Direct*
1-888-276-8033 *Toll Free*
1-604-648-8033 *Fax*

X-G-RST-DE Series Datasheet



- 360° continuous travel on both azimuth and elevation axes
- Speed up to 24°/s; max torque 10 N m; max payload 15 kg
- Direct reading encoder for slip/stall detection and position correction
- 300 and 500 mm width frame options
- Adjustable elevation offset for optimizing alignment and performance
- Built-in controllers & slip ring for effortless cable management
- Custom versions available

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X-G-RST-DE Series Overview

Zaber's X-G-RST-DE series products are motorized two-axis rotation stage devices with built-in controllers and direct reading encoders for high accuracy motion. Rated for up to 15 kg load capacity centered about the elevation axis and 10 N m of torque, they are ideal for high-load, high-precision, angular positioning in optics, telecom, scanning, and tracking applications.

These gimbals ship assembled, making them 'plug and play'. They are easy to set up and operate. A variety of standard crossmembers for both metric and imperial mounting are available: AP193M, AP193E, AP194M & AP194E; custom versions are also available. The adjustable height of the elevation assembly provides a versatile solution for centering different size payloads.

Zaber's X-RST-DE rotary stages with built-in controllers allow daisy-chaining power and communication. This means only one standard 48 V power supply is needed to power the gimbal. A single RS-232 or USB port from a computer can be used for convenient control of both axes of the system. The rotary stages are daisy-chained via slip ring offering tangle free cable management with unlimited rotation. Four additional signal wires are included through the slip ring, available for your convenience.

For more information visit: https://www.zaber.com/products/gimbal-stages/X-G-RST-DE

X-G-RST-DE Series Part Numbering & Options

X-G-RST 300 - DE50 SR10

Gimbal Size/Payload Clearance	Encoder Options	Slip Ring Options
300 — 300 mm **500** — 500 mm	**DE50** — Direct reading encoder, 0.2 arc sec/count	**SR10** — Azimuth Slip Ring Included

X-G-RST-DE Series Drawings

- X-G-RST-DE.png (Drawing for the Drawing for the X-G-RST-DE)
- View all drawings and documents at zaber.com

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X-G-RST-DE Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Range	+/-360 °
Manual Control	Yes

Positioning Performance

Specification	Value
Accuracy (unidirectional)	0.01 ° (0.1745 mrad)
Repeatability	<0.005 ° (<0.087 mrad)
Backlash	<0.005 ° (<0.087 mrad)
Microstep Size (Default Resolution)	0.00015625 ° (2.727 µrad)
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Continuous Torque	10 N·m (7.38 lb·ft)
Maximum Centered Load	150 (See Spec Definition) N (33.6 lb)

Speed

Specification	Value
Maximum Speed	24 °/s (4 rpm)
Minimum Speed	0.000095 °/s (1.658 µrad/s)

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Speed Resolution	0.000095 °/s (1.658 µrad/s)
Maximum Angular Momentum	0.4 kg·m2/s

Encoder & Sensing

Specification	Value
Encoder Type	Direct reading optical encoder
Encoder Count Size	0.00005556 °/count (0.2 arcseconds/count)
Encoder Resolution	1620000 CPR (648 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Angular Motion Per Motor Rev	2 °
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	1500 mA/phase
Motor Winding Inductance	6.6 mH/phase
Gear Ratio	180:1

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	48 VDC
Power Plug	2-pin Screw Terminal
Maximum Current Draw	2200 mA

Mechanical

Specification	Value
Aperture Diameter	50.8 mm (2 ")
Mechanical Drive System	Precision Worm Gear

Environmental & Compliance

Specification	Value
Operating Temperature Range	0-50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight
X-G-RST300-DE50SR10	13.3 kg (29.321 lb)
X-G-RST500-DE50SR10	13.9 kg (30.644 lb)

Contact

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X-G-RST-E Series Datasheet



- 360° continuous travel on both azimuth and elevation axes
- Speed up to 24°/s; max torque 10 N m; max payload 15 kg
- Encoder position feedback with slip/stall detection and automatic recovery
- 300 and 500 mm width frame options
- Adjustable elevation offset for optimizing alignment and performance
- Built-in controllers & slip ring for effortless cable management
- Custom versions available

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X-G-RST-E Series Overview

Zaber's X-G-RST-E series products are motorized two-axis rotation stage gimbal mount devices with built-in controllers and motor encoders allowing closed-loop operation and slip/stall recovery features. Rated for up to 15 kg load capacity centered about the elevation axis and 10 N m of torque, they are ideal for high-load, high-precision, angular positioning in optics, telecom, scanning, and tracking applications.

These gimbals ship assembled, making them 'plug and play'. They are easy to set up and operate. A variety of standard crossmembers for both metric and imperial mounting are available: AP193M, AP193E, AP194M & AP194E; custom versions are also available. The adjustable height of the elevation assembly provides a versatile solution for centering different size payloads.

Zaber's X-RST-E rotary stages with built-in controllers allow daisy-chaining power and communication. This means only one standard 48 V power supply is needed to power the gimbal. A single RS-232 or USB port from a computer can be used for convenient control of both axes of the system. The rotary stages are daisy-chained via slip ring offering tangle free cable management with unlimited rotation. Four additional signal wires are included through the slip ring, available for your convenience.

For more information visit: https://www.zaber.com/products/gimbal-stages/X-G-RST-E

X-G-RST-E Series Part Numbering & Options

X-G-RST 300 - E03 SR10

Gimbal Size/Payload Clearance	Encoder Options	Slip Ring Options
300 — 300 mm **500** — 500 mm	**E03** — Motor Encoder, 200 CPR	**SR10** — Azimuth Slip Ring Included

X-G-RST-E Series Drawings

- X-G-RST-E.png (Drawing for the X-G-RST-E)
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X-G-RST-E Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Range	+/-360 °
Manual Control	Yes

Positioning Performance

Specification	Value
Accuracy (unidirectional)	0.16 ° (2.792 mrad)
Repeatability	<0.005 ° (<0.087 mrad)
Backlash	<0.05 ° (<0.873 mrad)
Microstep Size (Default Resolution)	0.00015625 ° (2.727 µrad)
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Continuous Torque	10 N·m (7.38 lb·ft)
Maximum Centered Load	150 (See Spec Definition) N (33.6 lb)

Speed

Specification	Value
Maximum Speed	24 °/s (4 rpm)
Minimum Speed	0.000095 °/s (1.658 µrad/s)

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Speed Resolution	0.000095 °/s (1.658 µrad/s)
Maximum Angular Momentum	0.4 kg·m2/s

Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	200 CPR (8 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Angular Motion Per Motor Rev	2 °
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	1500 mA/phase
Motor Winding Inductance	6.6 mH/phase
Gear Ratio	180:1

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	48 VDC
Power Plug	2-pin Screw Terminal
Maximum Current Draw	2200 mA

Mechanical

Specification	Value
Aperture Diameter	50.8 mm (2 ")
Mechanical Drive System	Precision Worm Gear

Environmental & Compliance

Specification	Value
Operating Temperature Range	0-50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Weight
X-G-RST300-E03SR10	13.2 kg (29.101 lb)
X-G-RST500-E03SR10	13.8 kg (30.424 lb)

Contact

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