



G-Series Galvanometers

G1222 / G2860 / G3060 / G4080

GZ1920 / GZ2520

Experience Rooted in Passion

G-series is designed, developed, and manufactured at El.En.'s Italian facilities. For over 40 years, El.En. has passionately committed itself to achieving the highest levels of engineering and reliability, creating devices with advanced technological capabilities. In addition to galvanometers, El.En. also develops laser sources and components for a perfect integration. With more than 4000 industrial installations, El.En. has been chosen to achieve exceptional performance in a wide range of industries. Embrace the precision, innovation, and expertise of El.En.'s laser solutions, empowering your industrial applications with cutting-edge technology.

Introducing G-Series Galvanometer

The new G-Series Galvanometer features four different sizes, designed to deliver excellent performance in a wide range of applications. Each galvanometer is equipped with an internally designed optical position sensor, ensuring high dynamic performance, accuracy, precision, reliability, and minimal thermal drift. Whether you're working with mirrors ranging from 3mm to 100mm, you can find the best galvanometer perfectly suited to maximize processing performance. Additionally, for seamless integration and control, analogical and DSP driver boards options is provided. The galvanometer series is suitable for both small-scale projects and large-scale industrial applications.

The series is completed with linear motors offered in two different sizes, for high-speed lens movement (up to 1600mm/s) for dynamic focusing of the Z-axis. These motors adjust the focus accurately using advanced motion control and they are meticulously designed and built with top-grade components, ensuring outstanding quality and optimal performance.



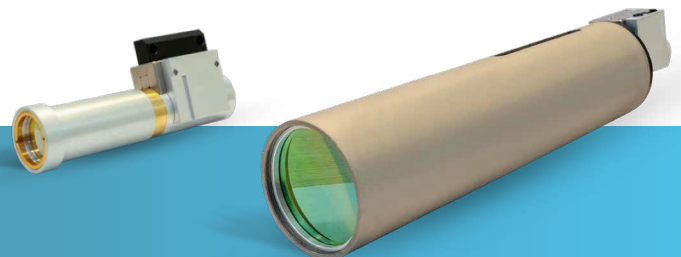
Key features

- Moving Magnet Technology
- High Dynamic Performance
- New Position Detector
- Low Thermal Drift
- Compact Size

Introducing Z Axes Motors Series Galvanometers

Galvo Z Linear Motors series, built by El.En in-house, is a versatile solution to meet the specific needs of many laser processing applications, providing precise focusing control over the whole field of view.

Dynamic and precise positioning allows also 3D processing capability, thanks to the 20mm lens stroke. Available in two sizes for different lens diameters.



Key features

- High Dynamic Performance
- Precise control
- Dynamic and Precise Positioning
- Customization options
- Compact Size

Seamless integration

The G-Series versatility enables seamless integration into a wide range of systems, providing flexibility to adapt to different mirror size requirements and diverse operational scenarios. The G-Series enables a comprehensive integration of El.En.'s cutting-edge technologies within the same system: laser sources and dedicated software control are designed to operate together synergistically.

This versatile and harmonized integrability empowers endusers or integrators with enhanced efficiency, productivity and performance across various applications and industries.

Moreover, the G-Series ensures compatibility with components other than those from El.En., offering added convenience for integration into existing setups.

Each model within the G-Series has been accurately engineered to deliver reliability, exceptional performance and versatility for a wide range of applications.



Applications

The G-Series is versatile and can be utilized in various industrial applications, including advanced remote processing, high-speed cutting and engraving of countless materials, digital converting for the packaging industry, label kiss-cutting, laser cleaning for the automotive industry, LIDAR systems and advanced applications in the aerospace industry, but it can be also integrated in advanced medical equipment for a wide range of primary medical applications from Surgery to Physiotherapy, from Ophthalmology to Aesthetics.

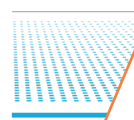
Processing



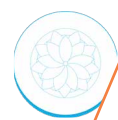
Laser
Cleaning



Laser
Cutting



Laser Micro
Perforation



Laser
Marking



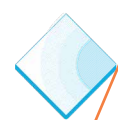
Laser
Drilling



Laser
Kiss-Cutting



Laser
Welding



Laser
Ablation



G1222



G2860



G3060



G4080

Mechanical & Electrical specifications G Series

Model	G1222	G2860	G3060	G4080
Rated excursion rotor (°mech.)	40	40	40	40
Rotor inertia (g·cm ²)	0.015	1.9	9	55
Recommended aperture size (mm)	3 ÷ 8	8 ÷ 30	15 ÷ 40	40 ÷ 100
Torque constant (mN·m/A)	2.2	17.2	48	103
Back EMF (mV/(rad/s))	2.2	17.2	48	103
Coil resistance (Ohm)	3.6	1.6	2.8	2
Coil inductance (μH)	100	270	650	1.1
Thermal resistance coil to case (°K/W)	4	0.9	0.65	0.3
RMS Coil current (A)	1.6	5	6	10
RMS Power (W)	10	50	90	200
Peak Coil current (A)	5	20	20	35
Weight (g)	27	210	330	1400
Linearity (%)	99.9	99.9	99.95	99.9
	99.8	99.8	99.9	99.8
Scale drift (ppm/K)	+/-50	+/-50	+10/-35	+10/-35
Zero drift (μrad/°K)	+/-15	+/-15	±8	±8
Long term drift (% f.s./year)	0.1	0.1	0.05	0.05
Repeatability (μrad)	15	15	10	10
Output signal, differential mode (μA/°mech)	6 ⁽¹⁾	6 ⁽¹⁾	21.5 ⁽²⁾	21.5 ⁽²⁾
Output signal, common mode (μA)	150	150	280	150
Sensor power requirements (V)	4.5-7 ⁽³⁾	4.5-7 ⁽³⁾	20 ⁽⁵⁾	20 ⁽⁵⁾
Sensor power requirements (mA)	15-30 ⁽⁴⁾	15-30 ⁽⁴⁾	25 ⁽⁶⁾	25 ⁽⁶⁾

(1) ±5%; Output signal common mode =150 μA

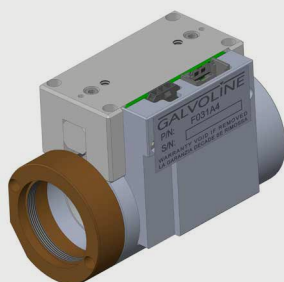
(2) ±5%; Output signal common mode =280 μA

(3) Over 20 to 60°C case temp

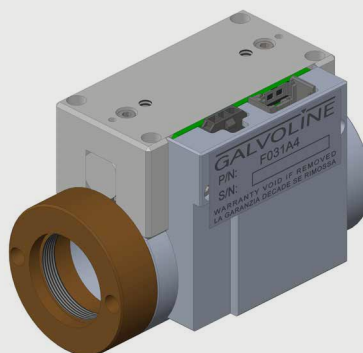
(4) Output signal, common mode =150 μA

(5) Typical, Output signal common mode = 280 μA

(6) Max, over 20 to 60°C case temperature



GZ1920



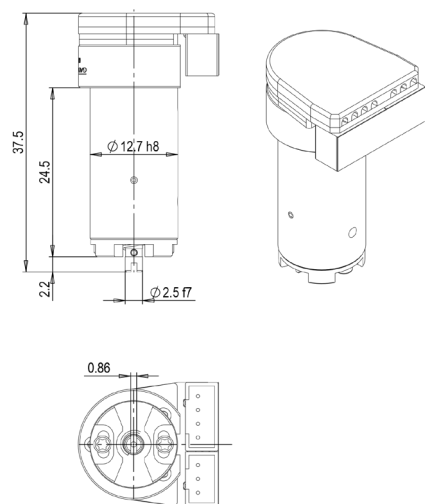
GZ2520

Mechanical & Electrical specifications GZ Series

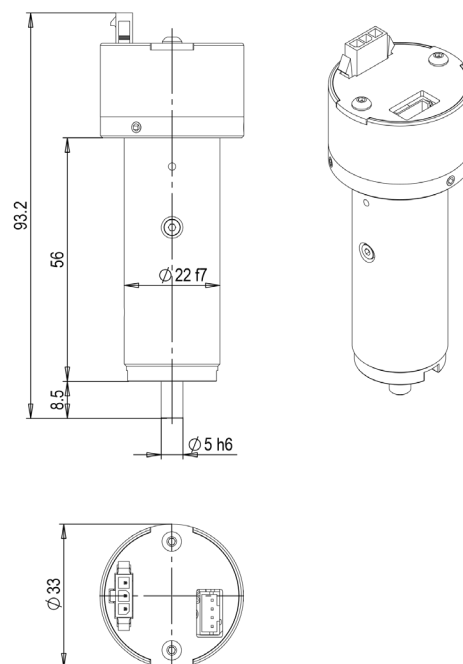
Note	Model	GZ1920	GZ2520
42° mechanically limited	Linearity over 20 mm	99.9% min	99.9% min
	Scale drift (ppm/K)	50 max	100 max
± 10%	Zero drift (µm/°K)	10 max	10 max
± 10%	Long term drift (ppm/year)	200 max	200 max
± 10%	Repeatability, short term (µm)	5 max	5 max
± 10%	Moving trolley excursion (mm)	20 Typical/21 max	20 Typical/21 max
Max	Moving lens housing (inch)	Ø ¾" *3mm thickness max	Ø 1" *4mm thickness max
Max Stator's temp. 60°C	Optical aperture (mm)	18	24
Max Stator's temp. 60°C	Moving trolley speed (mm/s)	1600 max	1400 max
10 ms @ 20 Hz	Moving trolley acceleration (G)	35 max	25 max
	Setting time (ms)	3.4 @ Dx = 2mm max 12 @ Dx = 20mm max	3.6 @ Dx = 2mm max 15 @ Dx = 20mm max
Min over +/-15° mecc excursion	Weight (g)	460 ± 10%	510 ± 10%
Min over +/-20° mecc excursion			
Max, over 20 to 60°C case temp.			
Max, over 20 to 60°C case temp.			
Short term, no temp. change			
Recommended			

Technical Drawings G-Series*

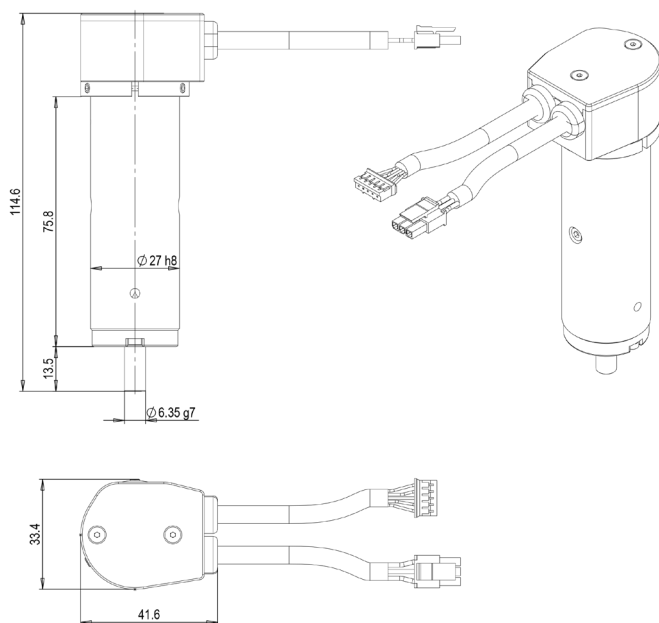
G1222



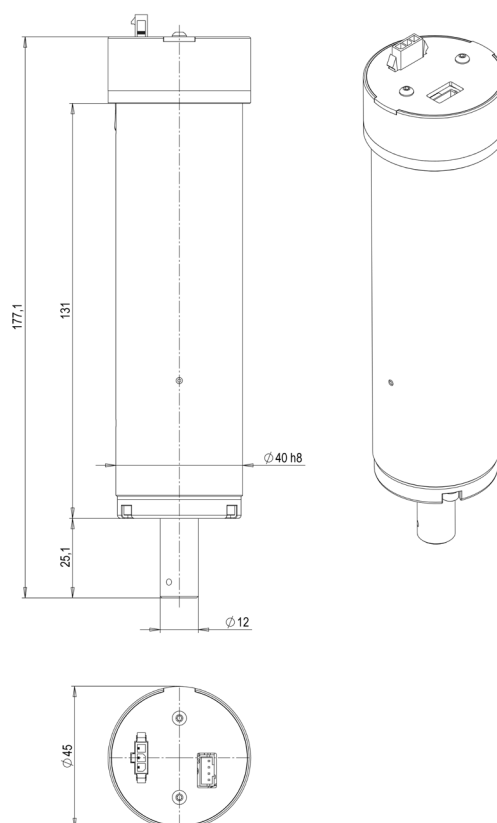
G2860



G3060

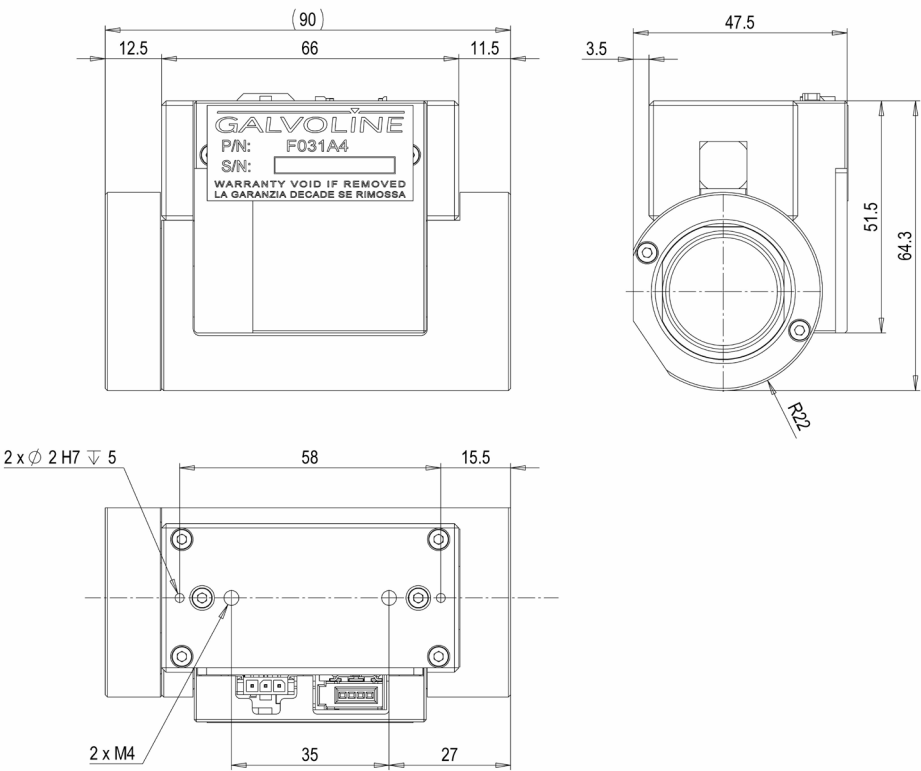


G4080

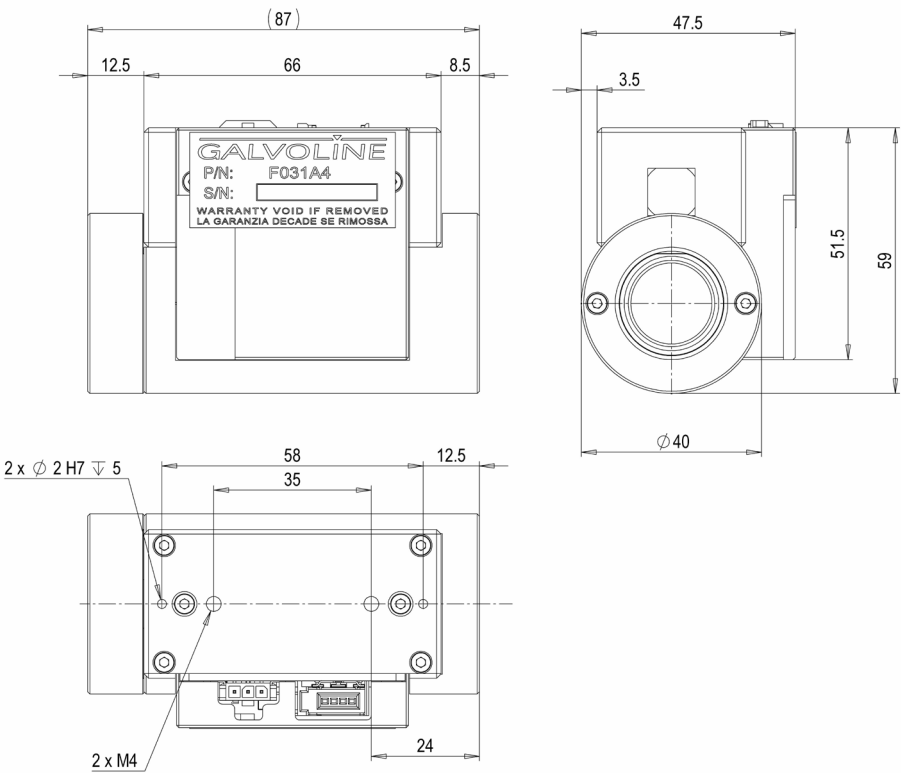


*Drawings not to scale

GZ1920



GZ2520



*Drawings not to scale



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