Nutfield Technology
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Hudson, NH 03051
603-893-6200

Optical Position Detector Galvanometer Scanners

- High linearity > 99.8%
- Consistent repeatability < 10 μrad
- Low drift < 50ppm
- Dynamic performance as low as 150 μs
- Aperture range 3mm to 45mm
- Excellent RF noise immunity
- High resolution
- Affordable

Nutfield Technology's high performance OPD family of QS-3, QS-5, QS-7 and QS-12 provide exceptional reliability and are built following the highest standards in the industry. Nutfield Technology's attention to design detail and scanning performance is evident in every OPD galvanometer scanner we manufacture.

Nutfield Technology's Optical Position Detector galvanometers bring superior quality to high speed scanning. Our moving magnet scanners are made with our exclusive ceramic ball-bearing motors that are combined with our high output position detectors. Patented low inertia optical detectors achieve dynamic performance with faster, more accurate positioning. When integrated with our QD-4000 servo amplifier, our single-axis and multi-axis scanning sub-assemblies provide speed and accuracy in compact, affordable configurations.

Nutfield's mechanical design incorporates low resistance/low inductance coils for increased scanning speed and optimized thermal characteristics. Our OPD generates 4 times the output signal for high signal/noise ratio and outstanding accuracy.

Nutfield's OPD galvos feature mirror aperture range from 3mm to 45mm, coated to accommodate all power levels and laser wavelengths. Minimum rotor inertia provides increased bandwidth and speed for stable, reliable performance.

Since 1997, Nutfield Technology has been designing and manufacturing the most advanced galvanometer-based optical scanners, scan heads, laser scan kits, control electronics and software products available. Founded by laser and laser scanning industry veterans, Nutfield offers a wealth of knowledge and expertise to select the proper products suited to any application. Contact Nutfield Technology today for solutions.

Applications:

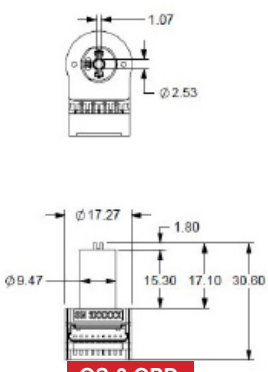
// Microscopy
// Imaging
// Marking
// Micromachining
// Dental Ablation
// Surface Treatment
// Textiles
// Optical Coherence Tomography
// Laser Light Show & Projection
// High Speed Scanning
// Industrial Processes
// Optical Filters

SPECIFICATIONS

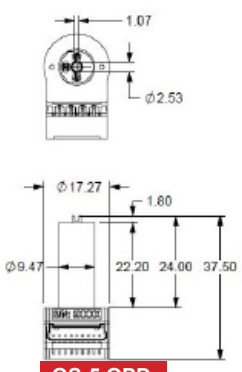



SPECIFICATIONS	QS-3 OPD	QS-5 OPD	QS-7 OPD	QS-12 OPD
Rotor Inertia	0.0140 gm-cm2	0.0184 gm-cm2	0.1736 gm-cm2	1.9492 gm-cm2
Torque Constant	12,000 dyne-cm	20,000 dyne-cm	40,000 dyne-cm	180,000 dyne-cm
Coil Resistance	1.8 ohm	2.4 ohm	1.3 ohm	3.0 ohm
Coil Inductance (@ 1kHz)	26 µh	46 µh	76 µh	530 µh
Weight (without cable)	19.6 g	22.6 g	36 g	128 g
Interial Load:				
Recommended	0.01 gm-cm2	0.012 gm-cm2	0.17 gm-cm2	1.8 gm-cm2
Maximum	0.04 gm-cm2	0.05 gm-cm2	0.85 gm-cm2	9 gm-cm2
Aperture Recommendation:	3 and 5mm	3 and 5mm	7 and 10mm	10, 15 and 20mm
Position Detector:				
Linearity	99.8% @ ±20˚	99.8% @ ±20˚	99.8% @ ±20˚	99.8% @ ±20˚
Gain Drift	50ppm/˚C	50ppm/˚C	50ppm/˚C (3 sigma)	50ppm/˚C
Offset Drift	15 µrad/˚C	15 µrad/˚C	30 µrad/˚C (3 sigma)	15 µrad/˚C
Repeatability	10 µrad	10 µrad	10 µrad (3 sigma)	10 µrad
Typical output signal				
differential mode	14.5 µA/˚	14.5 µA/˚	14.5 µA/˚	14.5 µA/˚
common mode	151µA	151µA	151µA	151µA
Supply current	15 - 20 mA	15 - 20 mA	15 - 20 mA	15 - 20 mA
* For larger angles, contact Nutfield Tech.				
Dynamic Performance:				
Step response time				
(1% of full scale, 99% settled)				
3mm X Mirror	200 µs	180 µs		
5mm X Mirror	250 µs	220 µs		
7mm X Mirror			230 µs	
10mm X Mirror			275 µs	260 µs
15mm X Mirror				325 µs
20mm X Mirror				410 µs

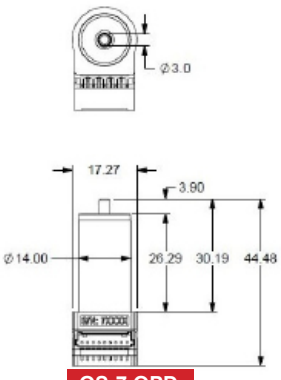
Cable lenghts available: 7” to 24” (0.18m to 0.61m)
Operating Temperature: 0 to 40˚C noncondensing
Storage Temperature: -10 to 50˚C
Specifications subject to change without notice.



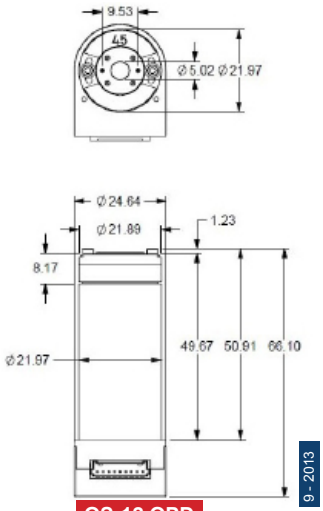
QS-3 OPD



QS-5 OPD



QS-7 OPD



QS-12 OPD

ALL DIMENSIONS ARE IN (mm)

9 - 2013