

Mirrorcle Technologies MEMS Mirrors – Device Prices for US Sales**

4-QUADRANT MEMS MIRRORS (BI-DIRECTIONAL TILT ON TWO-AXES):

Point-to-point or quasistatic two-axis MEMS mirrors with bi-directional tilt on each axis

	Actuator series	Integrated 0.8, 1.2 mm	Integrated 2.0, 2.4mm	Bonded 0.8, 1.2 mm	Bonded 1.6 - 2.4 mm	Bonded 3.0, 3.6 mm	Bonded 4.2 mm	Bonded 4.6, 5.0 mm
4.25mm Actuator	A1xx, A3xx	\$449.00	-	\$639.00	\$689.00	\$769.00	-	-
5.20mm Actuator	A7Mx, A7Bx	\$478.00	\$598.00	\$668.00	\$718.00	\$798.00	-	-
7.25mm Actuator	A5M24*, A8L2.2	-	*\$657.00	-	-	\$876.00	\$976.00	\$936.00
7.25mm Actuator	13Z2.1, A5L2.1	-	-	-	\$815.00	\$895.00	\$995.00	\$955.00

“Oversized” Quasistatic two-axis MEMS mirrors with bi-directional tilt on each axis:

	Actuator series	Package	Bonded 6.4mm	Bonded 7.5mm
7.25mm Actuator	A5L2.1	TINY48.4	\$1,195.00	\$1,295.00

Each MEMS mirror is delivered with a characterization report (datasheet) with static and step responses, overall scan look-up table, frequency response, and driving recommendations (MEMS Controller settings).

SINGLE-AXIS MEMS MIRRORS (BI-DIRECTIONAL TILT ON X-AXIS):

Most of the above 4-quadrant MEMS mirrors can be converted to become single-axis by mechanically restricting their Y-axis for prototyping and low-volume production purposes. There are a few designs specifically manufactured for single-axis quasistatic beam steering purposes both with integrated and bonded mirrors.

Point-to-point or quasistatic single-axis MEMS mirrors with bi-directional tilt on the X-axis:

	Actuator series	Integrated 1.2 mm	Integrated 4.0x1.3 mm	Bonded E2800-E3100	Bonded 6.0x2.4 mm	Bonded 3.0, 3.6 mm	Bonded 4.2 mm	Bonded 5.0 mm
4.25mm Actuator	A1Q12.5	\$499.00	-	-	-	-	-	-
5.2mm Actuator	A9Q40	-	\$547.00	-	-	-	-	-
5.2mm Actuator	A9S1.1, A9S2.1	-	-	\$640.00	-	\$690.00	\$740.00	-
7.25mm Actuator	A8L2, 13Z2, A5L2	-	-	-	\$895.00	\$845.00	\$945.00	\$905.00

Resonant single-axis MEMS mirrors with bi-directional tilt on the X-axis:

	Actuator series	Integrated 0.8mm (24kHz)	Integrated 1.0mm (15kHz)	Integrated 1.2mm (13kHz)	Bonded 0.8 - 1.2 mm	Bonded 1.6 - 2.4 mm	Bonded 3.0, 3.6 mm	Bonded 4.2 mm	Bonded 5.0 mm
4.25mm Actuator	A1Rx	\$359.00	\$369.00	-	-	-	-	-	-
5.20mm Actuator	A9Rx	\$428.00	-	\$448.00	\$578.00	-	-	-	-
7.25mm Actuator	A5L2.1S	-	-	-	-	\$765.00	\$845.00	\$945.00	\$905.00

ADDITIONAL CONSIDERATIONS:

In this, “made to order” category, typical lead time is approximately 3-4 weeks. See “Off-the-Shelf” category for fastest lead times and significant discounts.

Minimum order value (MOV): **\$1,600** (does not apply within 1 year of [development kit](#) purchase) - order includes all jointly purchased items such as MEMS devices, controllers, drivers, mounts, etc.

ADD-ONS:

Above prices apply for orders of at least 2 units of any design. For a single unit of a design, additional tooling cost of \$70 is added (except for customers within 1 year of development kit purchase).

Prices apply for Aluminum coating – for Gold coating (not available for all products), **add \$50/device**.
For an optical characterization of the mirror on a 3D Optical Microscope and delivery of data, **add \$75/device**.
Orders below Minimum order value (MOV) may be approved with a processing fee of **\$150/order**.
Credit-card orders are accepted with an additional **3.5%** fee (4.0% for international orders).

See next page for discounts and additional information.

DISCOUNTS*:

Above prices apply for orders of 2-4 devices.

Purchases of 5-9 devices of the same type receive 8% discount.

Purchases of 10-19 devices of the same type receive 10% discount.

Purchases of any devices by a group which has purchased a development kit within the previous 12 months will receive 8% discount.

Purchases from educational institutions such as universities will receive 10% discount (MOV must be met).

*Maximum of two discounts apply (partially) to any purchase. Our sales team makes determinations of eligibility.

Estimated discounts for larger orders ([Contact us](#) for a customized quotation with additional discount)

1000 units per order – 40% reduction (bonded mirror), 45% reduction (integrated mirror)

10000 units per order – 65% reduction (bonded mirror), 70% reduction (integrated mirror)

Exact volume pricing depends on the device type, packaging, testing, and delivery requirements and other factors and will therefore be determined on a case by case basis in a formal quotation.

**All prices are US domestic list price FOB Richmond, CA.

This document was last updated on May 25th, 2018. Prices and products are subject to change without prior notice.

For the most up-to-date availability and pricing please [request an official quotation](#).

For Terms and Conditions of Sale of Mirrorcle Technologies Products, Product Availability Cycles, Warranty and other Policies, please refer to our published [Terms and Conditions of Sale here](#) – and also available by email or mail upon request.

See next page for “Off-the-Shelf Standard MEMS Mirrors” pricing

Following MEMS mirrors are regularly produced in configurations as stated in the table and can be purchased at significantly discounted prices and with a short lead time of approximately 1-2 weeks. Customers can provide a choice of window coating based on the available options in the table with their order, and can also choose whether to attach the window permanently with adhesive (-A/EP), semi-permanently with tape (-A/TP), or lightly with tape (-A/2TP).

Part Number	Type	Angle*	Res. Freq.	Mirror Size	Window	Package	Recommend.	Price (5-9)	Price (10-19)
P/N		[°]	[Hz]	[mm]	(AR coating)		Drive**	[ea]	[ea]
A8L2.2-5000AU-TINY48.4-A/TP	2D Quasistatic	4.8	>250	5.0 Diameter	A, B, C	TINY48.4	T180	\$599	\$539
A8L2.2-4600AU-TINY48.4-A/TP	2D Quasistatic	4.8	>300	4.6 Diameter	A, B, C	TINY48.4	T180	\$665	\$598
A7M20.1-2000AL-TINY20.4-A/TP	2D Quasistatic	4.7	>1200	2.0 Diameter	A, B, C	TINY20.4	B160	\$449	\$399
A3I12.2-1200AL-TINY20.4-A/TP	2D Quasistatic	5.5	>2200	1.2 Diameter	A, B, C	TINY20.4	B160	\$349	\$299
A7M8.1-800AL-TINY20.4-A/TP	2D Quasistatic	4.7	>5600	0.8 Diameter	A, B, C	TINY20.4	B160	\$397	\$349

*Angle *Value* stated refers to mechanical angle for both axes (if 2D Type). Each device delivered will be tested to provide at least *-Value* to *+Value* mechanical angle tilt in degrees on both of its axes.

**Recommended Drive *Code* refers to a recommended range of driving voltages and voltage bias, as provided by [Mirrorcle Technologies MEMS Controllers and Drivers](#).

ADDITIONAL CONSIDERATIONS:

Minimum order quantity (MOQ): 5

ADD-ONS:

For an optical characterization of the mirror on a 3D Optical Microscope and delivery of data, **add \$75/device**. Credit-card orders are accepted with an additional **3.5%** fee (4.0% for international orders).

DISCOUNTS:

Purchases of 20+ devices of the same type receive additional discount. Exact volume pricing depends on the device type, packaging, testing, and delivery requirements and other factors and will therefore be determined on a case by case basis in a formal quotation.

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