

Air-Z Mini

PRODUCT OVERVIEW

- > Economical and compact air displacement pipettor for low-duty cycle applications designed for easy installation and replacement
- > Prevention of cross contamination and carryover during sample transfer and reagent aliquoting
- > Eliminate tubing and priming normally required for liquid handling.

FEATURES

- > Most economical and compact automated air displacement pipette for low-duty cycle applications
- > Designed for easy installation and replacement
- > Configurable for single unit operation or address up to 15 pumps individually (with optional controller)
- > Can be nested on 18 mm centers for multi-channel applications (available upon request)
- > Pump volume: 50 μL
- > Tip volume availability: 20 μL or 50 μL
- > Lightweight, compact, and maintenance free
- > Custom tip adaptors available
- > Optional pump controller, tip adaptor, and disposable tips

CONFIGURED OPTIONS

Disposable Tip Sizes	20 μL or 50 μL with or without filter barrier
Accessory Items	Tip Adapter

BASE MODEL

- > 50 μL



(shown with optional tip adapter and disposable tip)

AIR-Z MINI PRODUCT SPECIFICATIONS

Dispense Speed	1 μL /second up to 300 μL /second (with optional controller)	
Volume Resolution	0.05 μL /half step increments with 1100 increments/full stroke	
Operating Noise	<60 dBA, Indoor use only	
Addressing	Maximum of 15 pumps individually when using optional controller	
Operating Temperature and Humidity	15°C to 40°C (59°F to 104°F) and 20% to 95% RH at 40°C (104°F), non-condensing	
Non-Operating Temperature and Humidity	-20°C to 65°C (-4°F to 149°F) and 30% to 85% RH, non-condensing	
Media Temperature	15°C to 40°C (59°F to 104°F)	
Overall Dimensions (H x W x D) (with tip adaptor and without disposable tip)	4.32 in. [109.8 mm] x .80 in. [20.3 mm] 1.0 in. [25.2 mm] width and depth can vary depending on motor wire housing position	
Weight	30 gm	
Motor Data	Resistance / Phase	20.0 Ω
	Inductance / Phase	5.6 mH
	Rated Current	0.20 A
	Rated Voltage	4.0 V

FUNCTIONAL PARAMETERS

Imprecision (full volume) at 50 μL	$\leq 1\%$ CV
Inaccuracy (full volume) at 50 μL	$\leq 1\%$

OPERATING GUIDELINES

Driver Recommendations

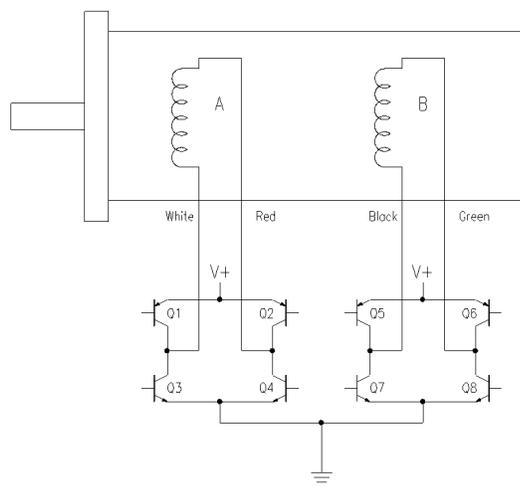
For best performance, the Air-Z Mini pump should typically be driven with a current controlled 24VDC bipolar chopper drive, with ½ micro-stepping, at rated current. Maximum suggested step rate at 24VDC is 1000 half-steps/sec. Higher voltage may be required for higher step rates. When the pump has completed a displacement/move, the coil current should be dropped to a hold current of 10% of rated current, or turned off completely, after a short delay. Before a following move, the current should be raised back to the rated (run) current with a short delay before stepping the motor. For duty cycles of 25% or less (pump is off 75% of the time), higher currents can be used for improved performance (up to two times the rated current). The power applied to the motor should never exceed the point where the temperature of the actuator motor exceeds 75C.

Pump Initialization

Since there is no home sensor feedback for the Air-Z Mini pump, the initialization after power-up of the pump should be performed as follows. Home the pump by stalling the pump at end of travel in the dispense direction using 75% of rated current. From this point, aspirate at least 20 steps at rated current to release the plunger, and make this point home (Position 0). Do not stall the pump at rated current (or higher) in either direction. It is recommended that plunger be parked at mid-stroke if pump is not being used for extended periods of time.

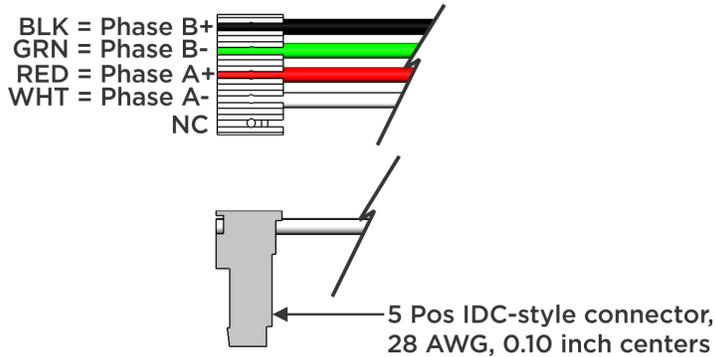
Pump plunger extension occurs when using the following step sequence (reverse the sequence to retract the plunger):

Bipolar Switches	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
Step 1	On	Off	On	Off
Step 2	Off	On	ON	Off
Step 3	Off	On	Off	On
Step 4	On	Off	Off	On
Step 1	On	Off	On	Off

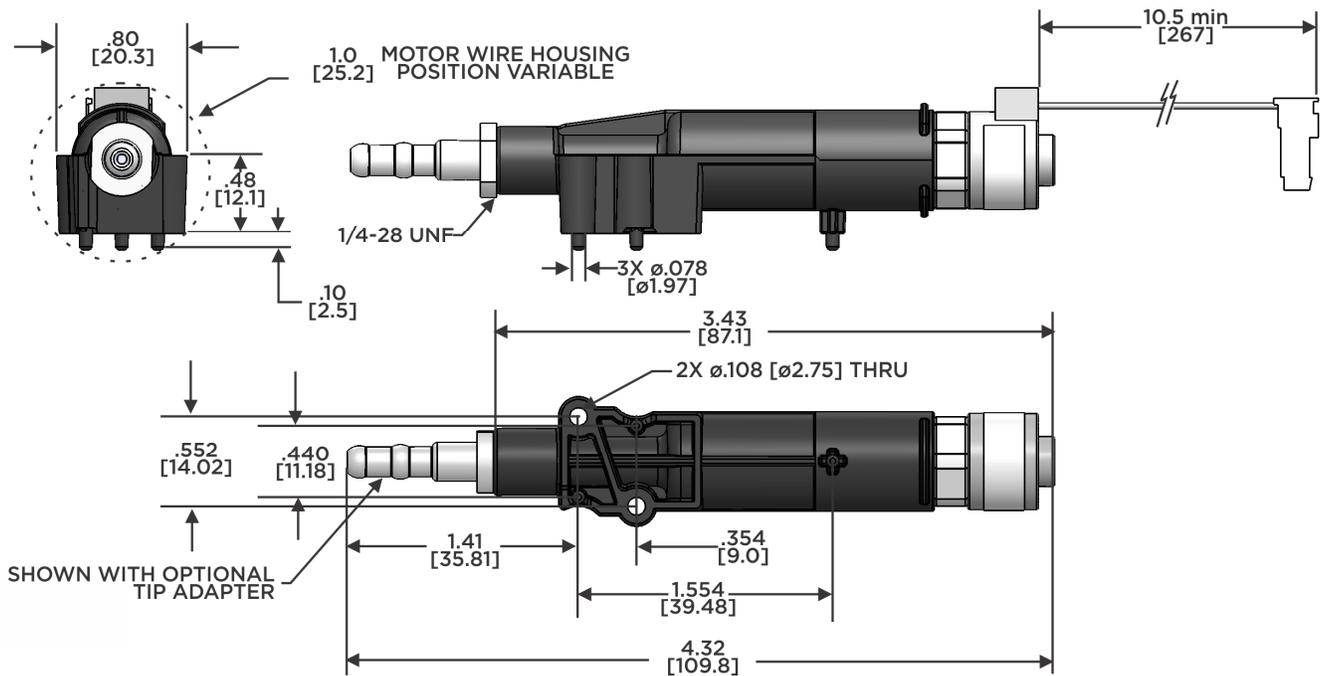


Mechanical Envelope and Interface

(Dimensions reference only)



MOTOR WIRE PIN OUT



Note: Dimensions in inches [mm] unless otherwise specified.

LIQUID HANDLING SOLUTIONS FOR OEMS WORLDWIDE

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