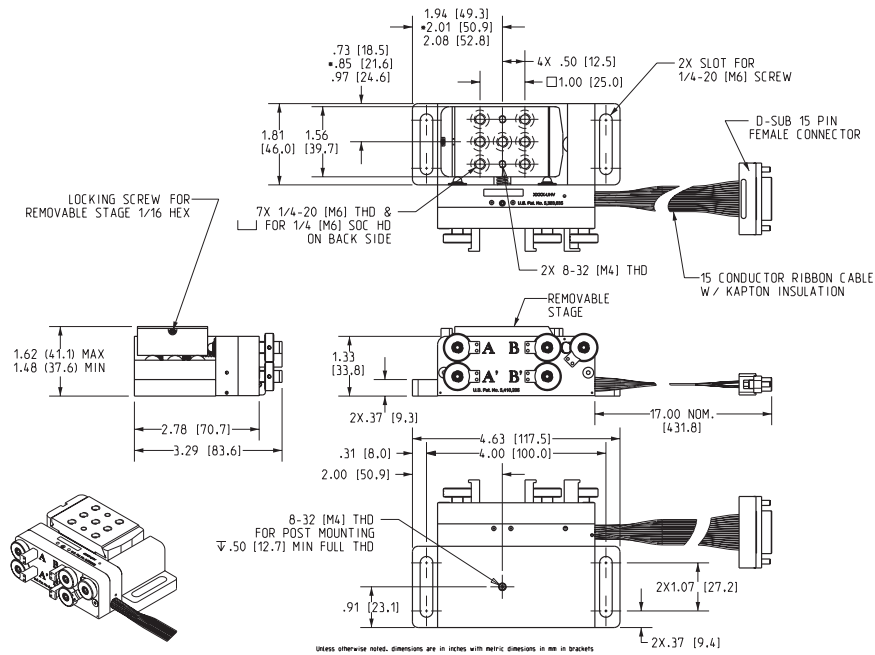


Technical Support:

For questions or concerns regarding the Model 8081-UHV 5-Axis Kinematic Stage UHV, please contact Customer Service 866-683-6287 or by e-mail at TechSupport@NewFocus.com

Warranty:

All products are guaranteed to be free from defects in material and workmanship for a period of one year from date of shipment. At its discretion, New Focus will either replace, repair, or credit the item.



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90058604 Rev. A

PICOMOTOR™ 5-AXIS KINEMATIC STAGE UHV

Model 8081(M)-UHV

U.S. Patent #5,303,035 & #5,410,206

Description:

Derived from our standard Five-Axis 8081 motorized kinematic stage, we are pleased to introduce an ultrahigh vacuum version. The 8081-UHV is designed for use in ultrahigh vacuum applications down to base pressures of 10^{-9} Torr. The model 8081-UHV was designed specifically to eliminate virtual leaks and utilizes materials with low outgassing properties. The outgassing rate of this product is less than 5 ppm of volatile mass at 85°C over three hours. These design virtues are critical in environments including vacuum ultraviolet (VUV) and extreme ultraviolet (EUV) applications.

Required Accessories:

- 1) 2X - Model 8725, Multi-Axis Adapters
- 2) Vacuum chamber feedthrough (Suggested: ACCU-GLASS Ultrahigh Vacuum CF Flange, p/n: 100210 or equivalent).
- 3) Picomotor Driver

Option 1

2X - Four-Axis Picomotor controller/Driver 8742-4-KIT or individual components that make up this kit

Option 2

1X - Six-Axis iPico™ Driver Kit Model 8766-KIT or individual components that make up this kit.

1X - Input Control Device:

- a. iPico™ Joystick Model 8754
- b. iPico™ Handpad Model 8757

Setup:

- 1) Open the 8081-UHV inner bag only in a clean environment.
- 2) Mount the 8081-UHV into your vacuum chamber.
- 3) Connect the DB15 female connector from the 8081-UHV ribbon cable onto the vacuum side DB15 feedthrough.
- 4) Connect the optional 8081-UHV-C cable assembly onto the outside DB15 feedthrough connector.
- 5) Connect Multi-Axis Adapters (2X 8725) onto each RJ25 connectors belonging to cables P1 and P2 from the optional 8081-UHV-C cable assembly.
- 6) Connect the Multi-Axis Adapter motor leads into each Driver's motor ports as shown in Table 1 or 2 (depending on which driver you have).

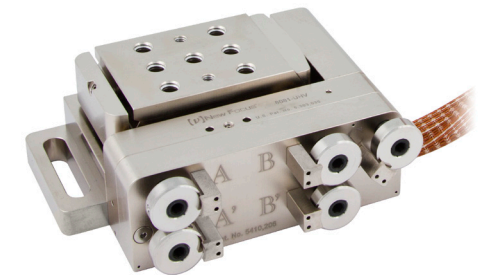


Table 1 – 8752 & 8753 iPico™ Driver Connections			
8753-1		8753-2	
Cable P1 (Motor A)	Motor A	Cable P2 (Motor A)	Motor A'
Cable P1 (Motor B)	Motor B	Cable P2 (Motor B)	Motor B'
Cable P1 (Motor C)	Motor C	Cable P2 (Motor C)	Not Active

Table 2 – Picomotor™ 8742 Controller/Driver Connections			
8742-1		8742-2	
Cable P1 (Motor 1)	Motor A	Cable P2 (Motor 1)	Motor A'
Cable P1 (Motor 2)	Motor B	Cable P2 (Motor 2)	Motor B'
Cable P1 (Motor 3)	Motor C	Cable P2 (Motor 3)	Not Active
Motor 4	Not Active	Motor 4	Not Active

Prepare the 8081-UHV for vacuum:

The Model 8081-UHV motorized five axis kinematic stage undergoes a bakeout at 85°C and is sealed in clean UHV aluminum foil. To maintain vacuum cleanliness, do not open the inner package or handle the stage except under clean, controlled conditions. If you require additional bakeout, we recommend 85°C for 24 hours. Do not expose unit to temperatures exceeding 85°C.

Additional comments:

- The New Focus Picomotor™ is the motor that actuates this kinematic stage. Its patented design allows better than 30-nm resolution, long-term stability, and power-off locking.
- Use only New Focus Picomotor™ drivers.
- Do not disassemble the Picomotor™ in any way (removing the knob, or screw, or opening the housing, can damage the unit).
- Do not lay Picomotor™ cables on or near the control pad cable.
- Do not apply lubricant to the Picomotor™ actuator screw.
- Do not extend Picomotor™ cables beyond 25 feet (contact technical support if you need cables longer than 25 feet).

Note: The Picomotor™ emits high-pitch tones during operation. These sounds are normal and do not indicate a problem with the device. Operation speed varies slightly with each PicoMotor™.

Specification:

Model#: 8081-UHV
 Motorized Axis: 5
 Degrees of Freedom: X, Y, Z, Θ_x , Θ_y
 Linear Travel: X = 5mm, Y&Z = 3mm
 Angular travel: Θ_x , = 8°, Θ_y = 10°
 Minimal Incremental Motion: X, Y, Z = <30nm
 Angular resolution: Θ_x , Θ_y <0.7 μ rad
 Maximum Load: 3 lbs (13N)
 Operating Temperature: 10 – 40°C
 Survival Temperature: -40 – 85°C
 Vacuum Compliance Level: 10⁻⁹ Torr
 Outgassing rate: < 5 ppm of volatile mass at 85°C over 3 hours
 Ribbon Cable: Kapton® Ultrahigh Vacuum Rated
 Connector Type: DB15 Female
 Metric version: 8081M-UHV

Cable Style*

Model#: 8081-UHV-C
 Connector 1 Style: DB15 Female
 Connector 2 Style: 6-pin RJ25 Connectors (2)
 Length: 6' (1.83 meters)
 Vacuum Compliance level : NA
 Intended Connection: From Feed through to Driver Outside Vacuum

* Cable not included with Model 8081-UHV Motorized Five-Axis Kinematic Stage

For custom cable installations refer to table 3 identifying pin-out assignments of the 8081-UHV ribbon cable connector.

Table 3 – 15-Pin DB Connector Pinout Assignments					
Actuator	Pin	Actuator	Pin	Actuator	Pin
Motor A (HV+)	7	Motor C (HV+)	11	Motor B' (HV+)	10
Motor A (HV-)	14	Motor C (HV-)	3	Motor B' (HV-)	2
Motor B (HV+)	8	Motor A' (HV+)	9	Not Used	4, 5, 6
Motor B (HV-)	15	Motor A' (HV-)	1	Not Used	12, 13