

\_active vibration isolation desktop unit  
halcyonics\_i4 series



# Active Vibration Isolation Desktop Unit

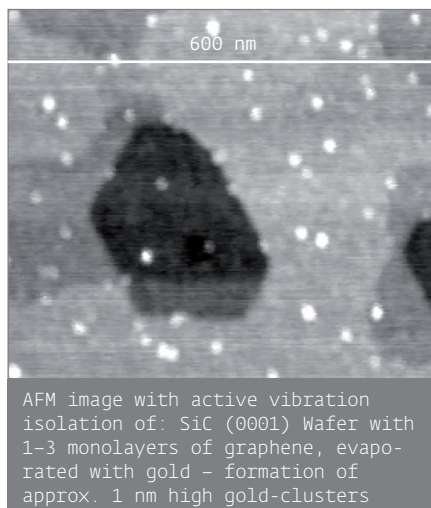
## halcyonics\_i4 series

### ABSTRACT

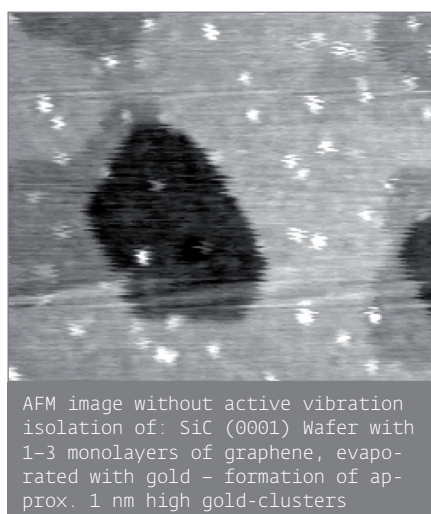
The halcyonics\_i4 is a state-of-the-art active benchtop vibration isolation system from Accurion. Aside from its low-profile carbon design, the i4 has expanded application capability. Main features are the automated transport locking mode and fully automatic load adjustment which makes the handling extremely straightforward. It takes only a few seconds to start up the halcyonics\_i4. No adjusting or tuning is required.

The control panel is self-explanatory and the entire system is controlled by only three buttons. This enables the user to completely concentrate on the application.

Because of its slim dimensions and broad load range, the halcyonics\_i4 is a multi-functional active vibration isolation system for a variety of applications. This allows you flexibility for future applications with just one model – the halcyonics\_i4.



AFM image with active vibration isolation of: SiC (0001) Wafer with 1-3 monolayers of graphene, evaporated with gold – formation of approx. 1 nm high gold-clusters



AFM image without active vibration isolation of: SiC (0001) Wafer with 1-3 monolayers of graphene, evaporated with gold – formation of approx. 1 nm high gold-clusters

### APPLICATIONS

- Scanning probe microscopy (AFM, SNOM, STM, etc.)
- Inverse microscopy
- Confocal scanning microscopy
- Profilometers
- Nanoindentation
- Micromanipulation
- Ultramicrotomes
- Ultra-precise scales
- ... and many more

### FEATURES & BENEFITS

- Isolation in all six degrees of freedom
- Active vibration isolation starts at 0.6 Hz (passive isolation above 200 Hz)
- Exceptionally compact dimensions
- Compact and portable
- Automatic load adjustment and transportation lock
- Ideal for isolating high-resolution measurement equipment from building vibrations
- AC power from an electrical outlet is sufficient; no compressed air supply is needed
- Excellent position stability – inherent stiffness typically 20-30 times higher than that of a 1 Hz passive isolator
- Low voltage electromagnetic actuators
- No natural low frequency resonance and, as a result, excellent vibration characteristics also in frequency ranges below 5 Hz
- Settling time of only 0.3 s
- Two-year warranty
- Quality control procedures and long term tests

# Technical Specifications:

## halcyonics\_i4 series

### \_AVAILABLE STANDARD VERSIONS

halcyonics\_i4

### \_PERFORMANCE SPECIFICATIONS

ISOLATION TECHNOLOGY:	halcyonics control technology based on piezoelectric type acceleration pickup, fast signal processing and electro-dynamic type force transducers
FORCE DIRECTIONS:	Active compensation in all six degrees of freedom
ISOLATION PERFORMANCE:	> 5 Hz = 25 dB (94.4 %), > 10 Hz = 40 dB (99.0 %)
ACTIVE BANDWIDTH:	0.6–200 Hz*
STROKE OF THE ACTUATOR:	1,000 µm
SETTLING TIME:	300 ms**
MAX. CORRECTION FORCES:	
V. = Vertical	V. ± 8 N
H. = Horizontal	H. ± 4 N
LOAD CAPACITY:	0–120 kg   0–265 lbs

### \_OTHER SPECIFICATIONS

WEIGHT:	20 kg   44 lbs
TABLE TOP MATERIAL:	Powder coated aluminum
TOP PLATE SURFACE FLATNESS:	± 0.10 mm over complete surface
MAX. COMPENSATION LEVEL:	500 µm/s at 6 Hz and with a load of 60 kg   132 lbs**
REPEATABILITY OF LOAD ADJUSTMENT:	120 µm
D-SUB INTERFACE:	Service interface, optional USB adapter

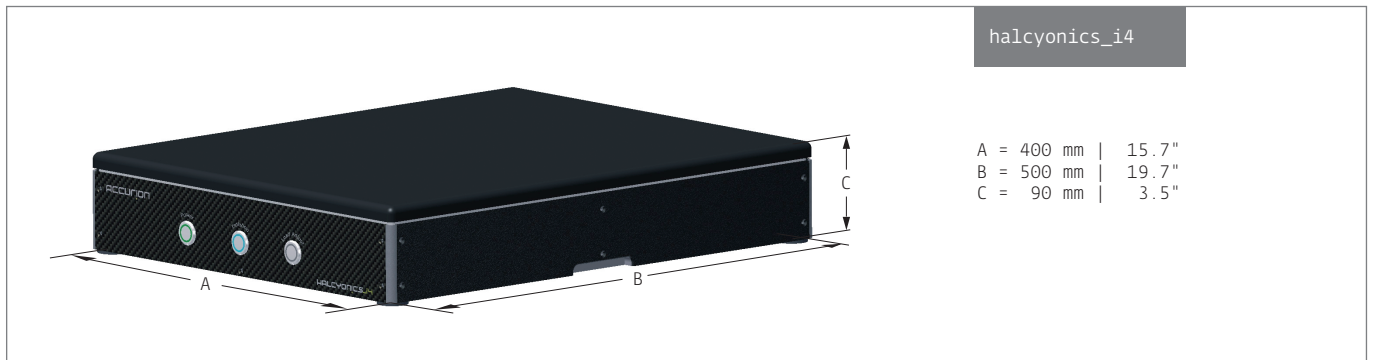
## \_ENVIRONMENTAL AND OPERATIONAL REQUIREMENTS

ELECTRICAL VOLTAGE:	100-240 V~ / 47-63 Hz
POWER CONSUMPTION:	Typically 40-45 W
OPERATING TEMPERATURE:	10-40 °C   50-104 °F
OPERATING HUMIDITY:	0-60 %
OPERATING ALTITUDE:	<2,500 m   8,100 ft

## \_CERTIFICATION

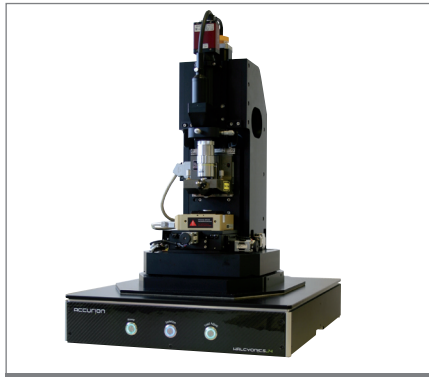
ELECTRICAL SAFETY:	CE certificated according to the directive 2006/95/EC
EMC:	CE certificated according to the directive 2004/108/EC

- \* Floating table top is supported by steel springs; low-pass characteristics of spring-mass combination dominates the dynamic behaviour above 200 Hz.
- \*\* The settling time and maximum compensation level depend on several conditions, such as payload, frequency, load distribution and height of the payload. For that reason this value should be considered as an estimation.





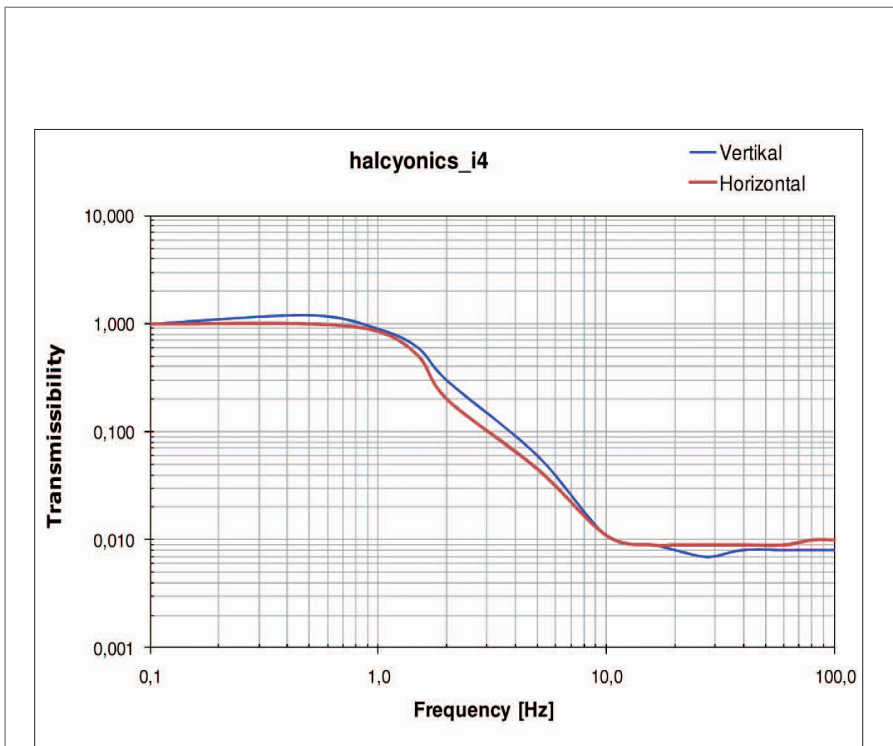
Support frame with halcyonics\_i4 system



Park Systems XE-100 AFM on halcyonics\_i4



JPK Instruments NanoWizard® AFM on halcyonics\_i4



Transmission graph of the halcyonics\_i4 measured at a velocity of 100  $\mu\text{m/s}$  with a payload of 20 kg (44 lbs).



Manufacturing the halcyonics\_i4

## ACCESSORIES AND OPTIONS

- Steel support frame
- Acoustic enclosure
- USB adapter
- Metric mounting holes in top plate (M6 tapped holes on 25 mm centers)
- Imperial mounting holes in top plate (1/4"-20 tapped holes on 1 inch centers)

