

active vibration isolation desktop unit
halcyonics_i4 series



Active Vibration Isolation Desktop Unit

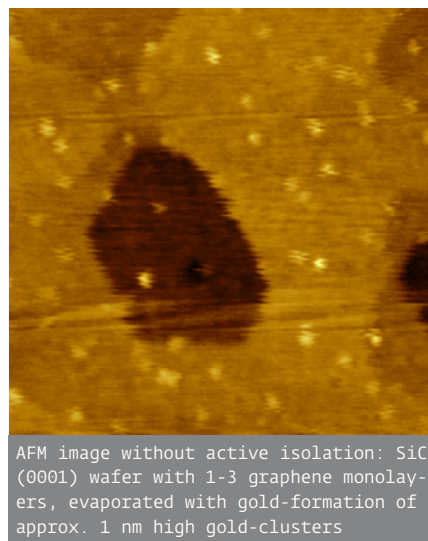
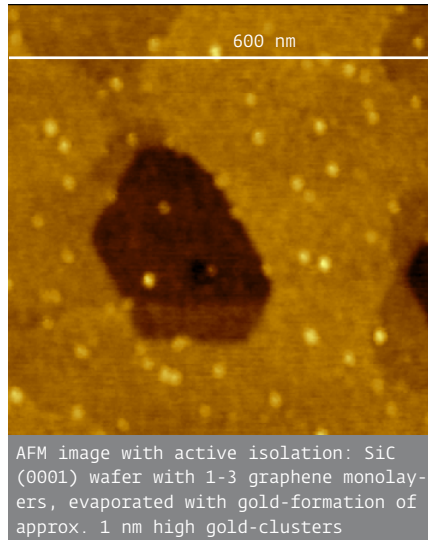
halcyonics_i4 series

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.



APPLICATIONS

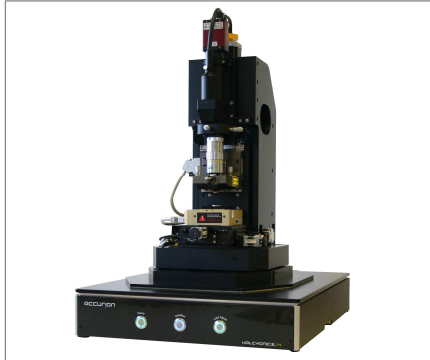
- Scanning probe microscopy (AFM, SNOM, STM, etc.)
- Optical microscopy
- Confocal laser scanning microscopy
- Profilometers
- Nanoindentation
- Micromanipulation
- Ultramicrotomes
- Ultra-precise scales
- ... and many more

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
- 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 only 0.3 s
- Two-year warranty
- Quality control procedures and long term tests



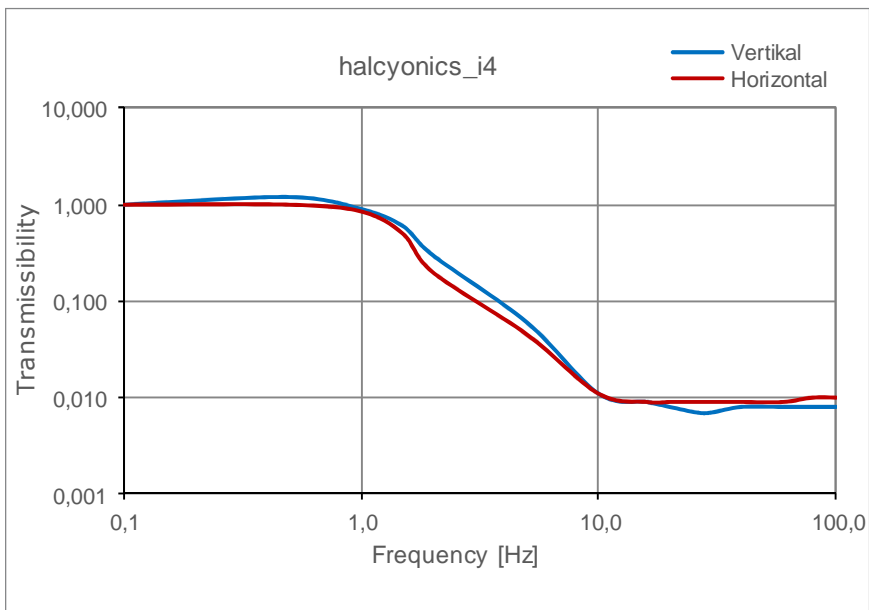
Support frame with halcyonics_i4 system



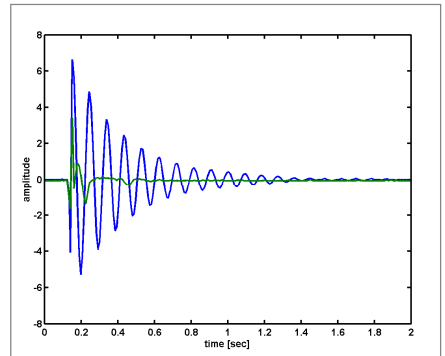
Park Systems XE-100 AFM on halcyonics_i4



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)



Typical settling time below 0.3 sec



Manufacturing the halcyonics_i4

ACCESSORIES AND OPTIONS

- Acoustic enclosures
- Steel support frame
- Mounting holes in top plate (M6/25 or 1/4-20")

Technical Specifications

halcyonics_i4 series

AVAILABLE STANDARD VERSIONS

i4	i4 <i>large</i>
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PERFORMANCE SPECIFICATIONS

ISOLATION TECHNOLOGY:	halcyonics control technology based on piezoelectric type acceleration pickup, fast signal processing and electro-dynamic 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*	
SETTLING TIME:	300 ms**	
RESPONSE TIME:	0.5 ms***	
STROKE OF THE ACTUATOR:	1 mm	
MAX. CORRECTION FORCES:		
V = Vertical	V ± 8 N	
H = Horizontal	H ± 4 N	
MAX. COMPENSATION LEVEL:	500 µm/s at 6 Hz with a load of 60 kg (132 lbs)**	
REPEATABILITY OF LOAD ADJUSTMENT:	120 µm	

STRUCTURAL SPECIFICATIONS

LOAD CAPACITY:	0 - 120 kg (0 - 265 lbs)	0 - 105 kg (0 - 232 lbs)
WEIGHT:	20 kg (44 lbs)	40 kg (88 lbs)
TABLE TOP MATERIAL:	Powder coated aluminum	
TOP PLATE SURFACE FLATNESS:	± 0.10 mm over complete surface	

* The low-pass characteristics of the spring-mass combination dominate the dynamic behavior of the isolation system above 200 Hz. The part of the active isolation decreases with increasing frequency.

** The settling time and maximum compensation level depend on several conditions such as payload, frequency and load distribution. The mentioned value is exemplary for a centric load of 80 kg. The settling time defines the time until an incoming vibration is compensated.

*** The response time determines when the system starts to actively isolate an incoming vibration after detection by the sensors.

Technical Specifications and Dimensions

halcyonics_i4 series

ENVIRONMENTAL AND OPERATIONAL REQUIREMENTS

ELECTRICAL VOLTAGE:	100 - 240 V / 47 - 63 Hz
POWER CONSUMPTION:	Typically 40 - 45 W
OPERATING TEMPERATURE:	15 - 40°C / 59 - 104 °F
RELATIVE HUMIDITY:	0 - 60 %
OPERATING ALTITUDE:	< 2500 m / 8100 ft

CERTIFICATION

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



A = 400 mm | 15.7"
B = 500 mm | 19.7"
C = 90 mm | 3.5"

i4



A = 550 mm | 21.7"
B = 700 mm | 27.6"
C = 92 mm | 3.6"

i4large

