Product Datasheet: Precursor

Version Date: Nov 2024

1. Product Overview

- Product Name: Precursor
- Description: Single-axis shake table for earthquake education and research
- Manufacturer: Seismove LLC
- Model Number: SM-P-001, SM-P-002, SM-P-003
- Release Date: 12/23/2024

2. Key Features

- Single-axis Movement: Supporting ground motion up to 150 seconds.
- Robust Control: Feedback control with high accuracy.
- Standard Waveforms: Cosine displacement functions.
- Customizable Waveforms: Supports displacement recordings in CSV format.
- User-Friendly Interface: Operated via Seismove Precursor Client software, compatible with Windows, macOS, and Ubuntu platforms.
- Safety Features: Includes software-defined displacement limits, range limit sensors, torque-limited shutoff, and emergency stop switch.

3. Technical Specifications

- Motion Specifications:
    - Max Displacement: ± 220 mm
    - Max Velocity: 0.6 m/s
    - Linear Resolution: 0.1 mm
- Performance Curves:
    - Please refer to Appendix A3.
- Maximum Operating Frequency: 25 Hz
- Payload Capacity at 1 g: 50 kg
- Maximum payload: 75 kg
- Degrees of Freedom (DoF): 1-axis
- Power Requirements:
    - Input Voltage: 110V AC or 220V AC (default is 110V AC). To change the input voltage, please contact Seismove technicians for guidance. Using an incompatible input voltage may damage the shake table. Additionally,

unauthorized modifications to the device may result in damage and pose a risk of injury.
    - Maximum Power Consumption: 600 W
- Control System:
    - Control Interface: Micro USB
    - Software Compatibility: Windows, MacOS, Ubuntu
    - Control Modes: Predefined and customized waveforms
- Environmental Conditions:
    - Operating Temperature: 0°C to 40°C
    - Storage Temperature: 0°C to 60°C
    - Humidity: Up to 80% non-condensing

4. System Components

- Main Components:
    - 1x Shake Table
    - 1x Control Box
- Accessories:
    - 1x Micro USB Cable
    - 4x Table Mounting Brackets
    - 1x IEC Power Cable
    - 1x Ethernet Cable

5. Software

- Seismove Precursor Client (Windows, MacOS, and Ubuntu)
- Seismove Precursor Firmware

6. Physical Dimensions

- Table Dimensions: 81 x 31 x 12 cm
- Control Box: 33 x 26 x 15 cm
- Table Storage Case (sold separately; requires additional purchase): 94 x 45 x 20 cm

- Total Weight (table and control box): 15 kg
- Table Mounting Options: Mounting brackets are provided. For custom mounting options, please refer to Appendix A1 for the frame section diagram.
- Bed Mounting Options: Please refer to Appendix A2 for the bed diagram.

7. Applications

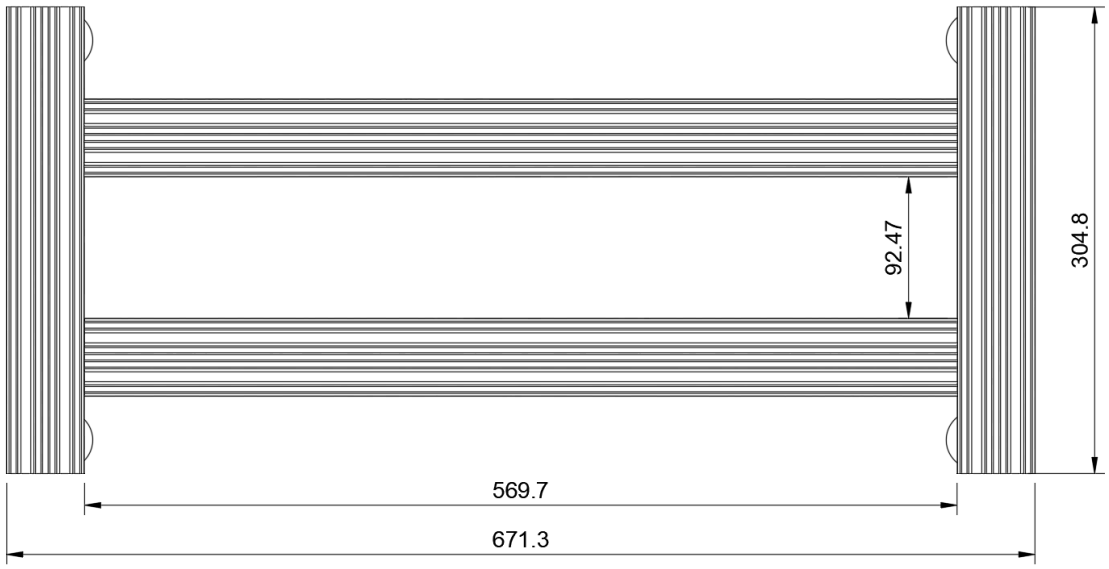
- Earthquake simulation and education
- Structural engineering testing
- Research in material science

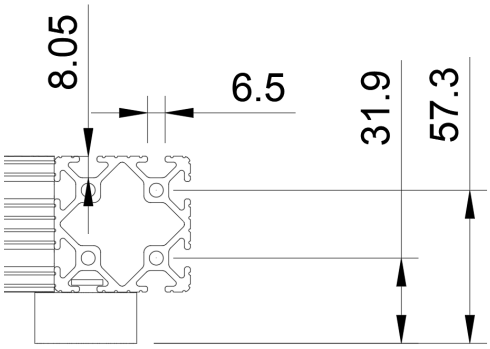
8. Disclaimer

- This shake table is designed for educational and research purposes only. It is intended to simulate controlled seismic activity or other vibration tests within specified operational limits. Seismove LLC assumes no responsibility for damage or injury resulting from improper use or operation outside of recommended guidelines.
- Safety Precautions: Users must follow all operational and safety instructions provided in the user manual. The shake table should be operated only by trained personnel. Always ensure that the test area is clear of any non-essential personnel, and that all safety features (including emergency stop) are functioning before use.
- Liability: Seismove LLC is not liable for any direct, indirect, incidental, or consequential damages arising from the use or misuse of this product. Any modifications to the device void the warranty and absolve Seismove LLC of responsibility for resulting issues.
- Warranty: This product is warranted against manufacturing defects for a period of one year from the date of purchase. This warranty does not cover damage resulting from unauthorized modifications, improper use, or operation outside the specified parameters.

Appendix

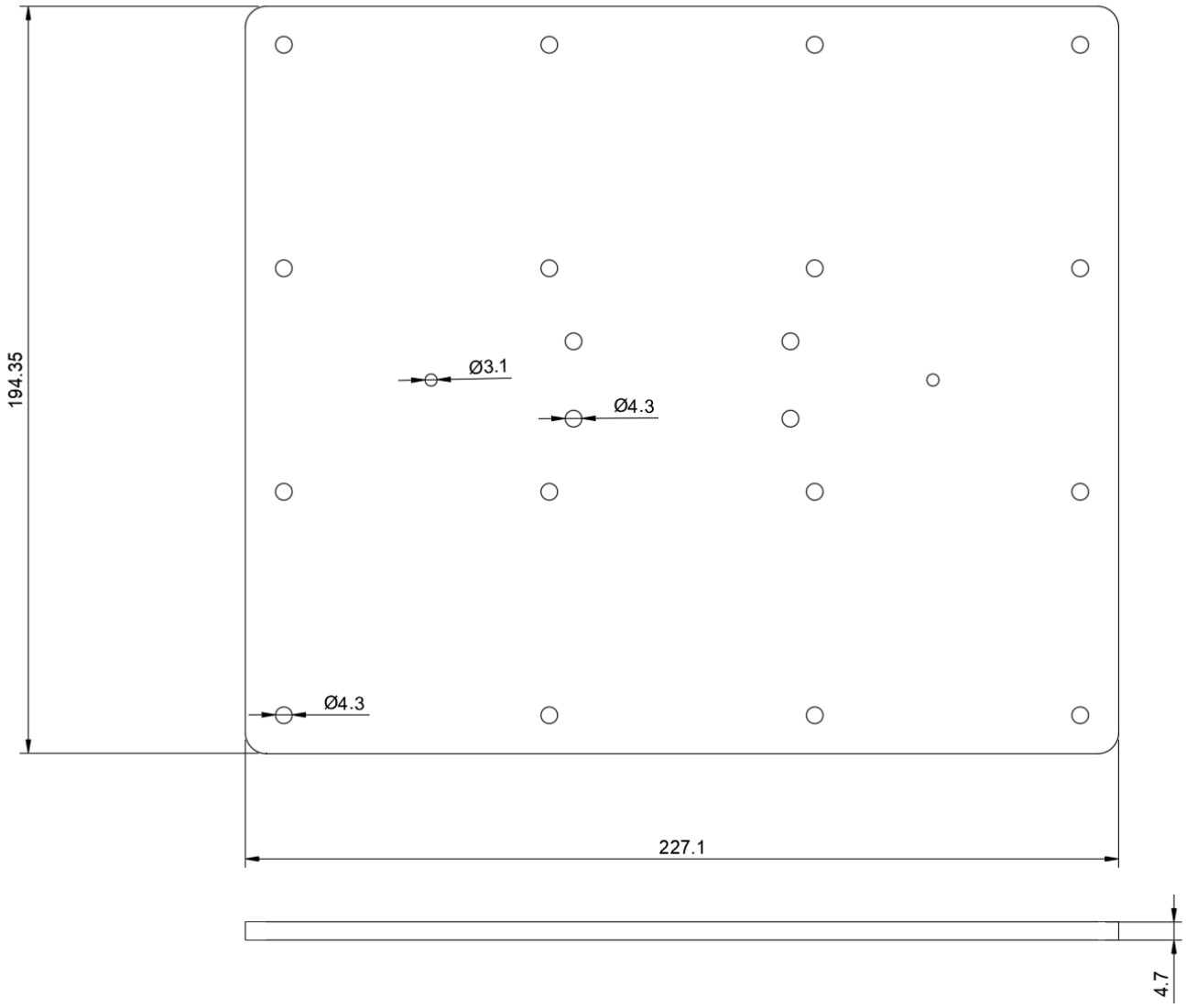
A1. Frame section diagram





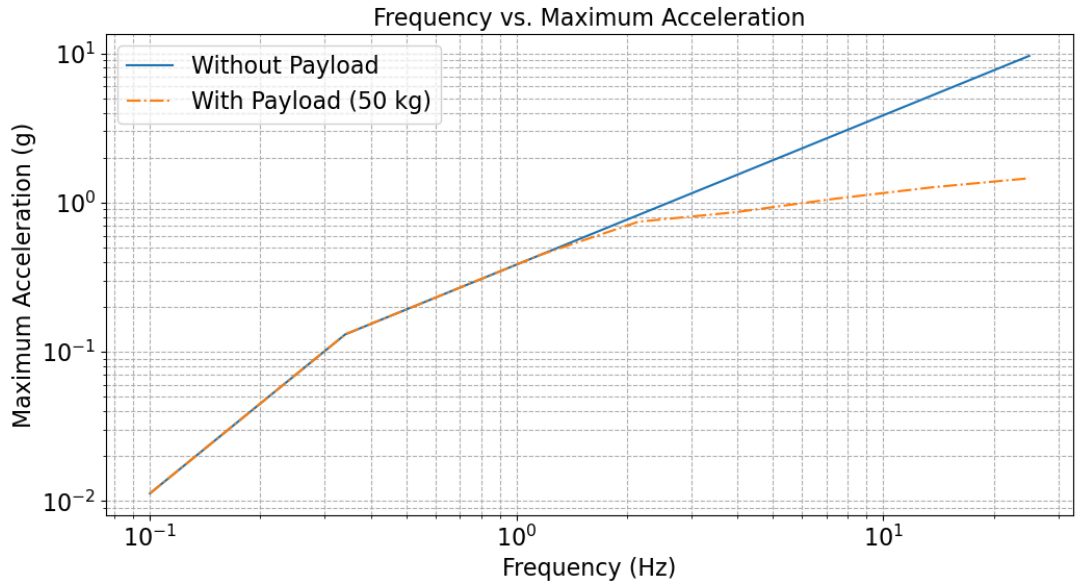
1/4"-20 T-Slot is recommended for custom mounting.

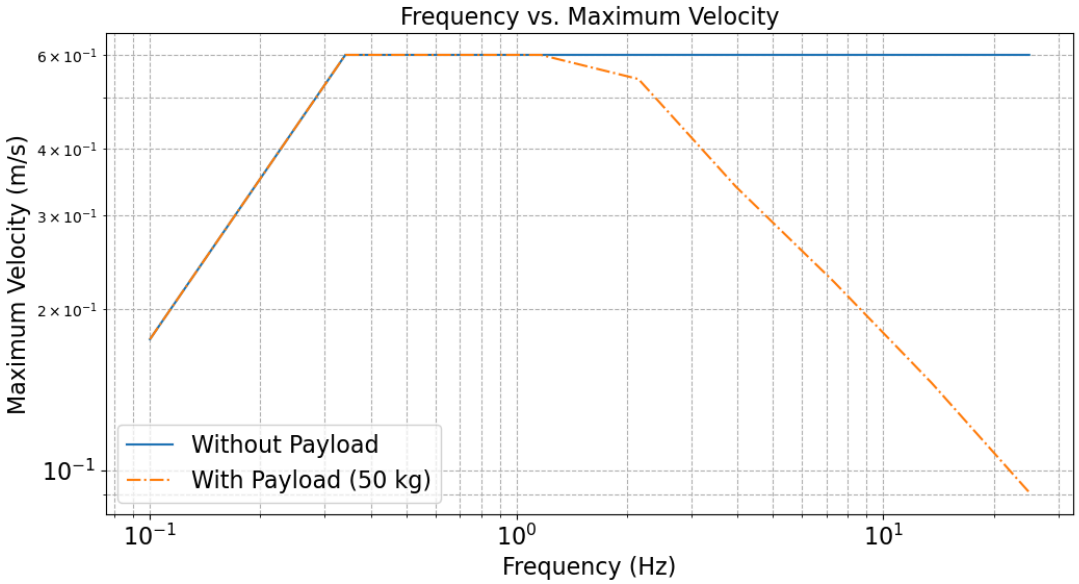
A2. Bed diagram

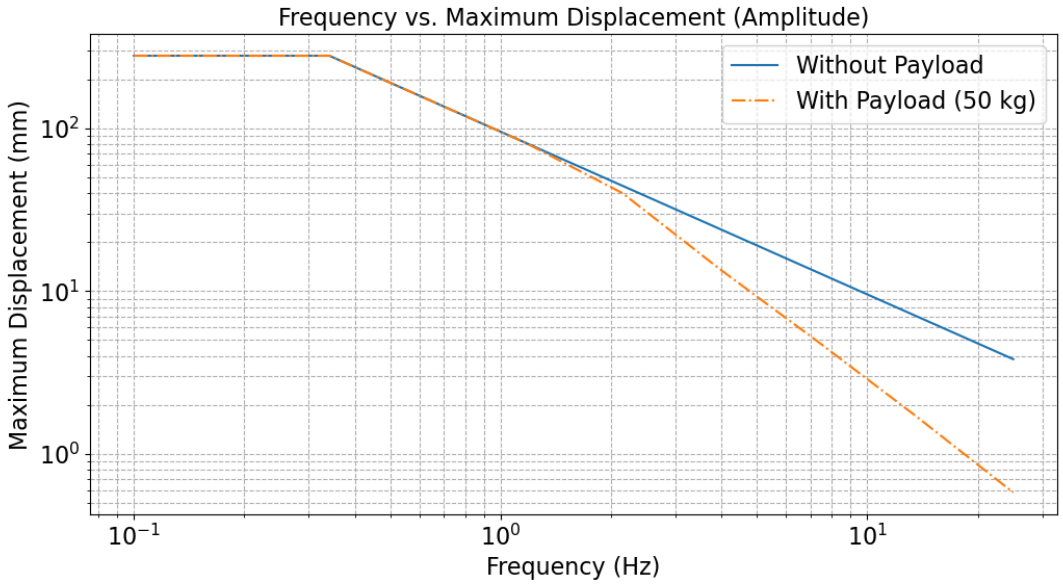


M4 x 16

A3. Performance curves






Frequency vs. Maximum Displacement (Amplitude)
Without Payload
With Payload (50 kg)
Maximum Displacement (mm)
10^2
10^1
10^0
10^{-1}
10^0
10^1
Frequency (Hz)