SIXDYN MOTION PLATFORMS

The SIXDYN Platform is able to accurately reproduce motion reference profiles in the six rigid body degrees of freedom. Thanks to its advanced real-time control system, it can be used in many applications such as driving, flight or seismic simulation. Several models with different payloads are available.

APPLICATIONS

- **Motion simulation. Easy integration with third party software packages**
    - Driving simulators
    - Flight simulators
    - Marine vehicles
    - Military vehicles

- **Hardware/Human in the Loop Testing. Customizable sets of inputs and outputs.**

- **Academic resource. Programmed in National Instruments ® LabVIEW ®**
    - Seismic simulation
    - Structural Dynamics and Vibrations
    - Attitude Mechanics
    - Robotics
    - Control Theory

KEY FEATURES

- **Standard payloads: 300 kg/500 kg (other payloads on demand)**

- **Six degrees of freedom: X, Y, Z, Roll, Pitch and Yaw**

- **Electromechanical actuation technology. BLDC servomotors**

- **Frequency range: 0-20 Hz**

- **Easy integration with third party software for DoF references generation in real time**

- **Rugged and reliable design**

- **Low maintenance requirements**
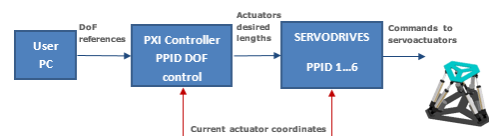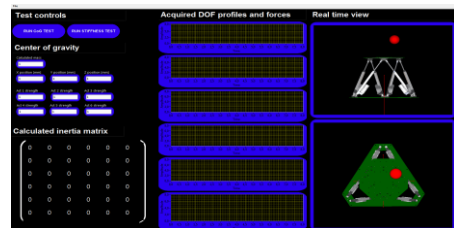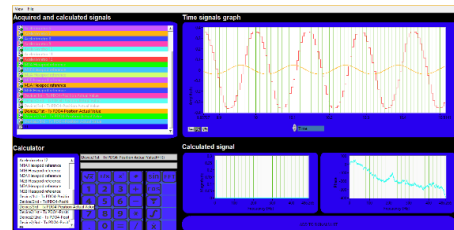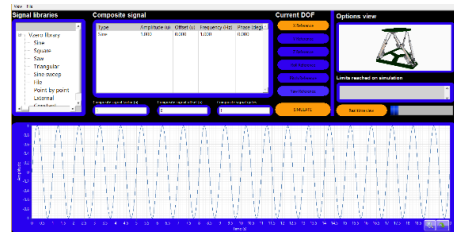
SIXDYN 300 KG
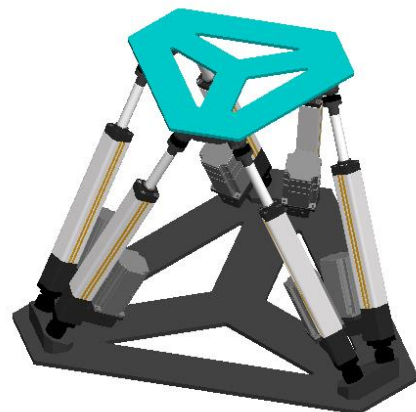
SIXDYN 500 KG

Control rack

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SIXDYN MOTION PLATFORMS

SGP CONTROL SOFTWARE SUITE

- **RPD: Reference Profile Definition per DoF:**
  - Basic waveforms: sine, square, etc.
  - From ASCII file
  - Time-magnitude pairs
  - Swept sine and Random
  - External (third party software)

- **TME: Test Management and Execution**
  - Load and review of previously defined tests
  - Real time tuning of control parameters
  - Test execution management: run/stop test, pause, abort test. Data saving
  - Waveform visualization: Reference and actual waveform in DoF/Actuator space

- **TDR: Test Data Review**
  - Load and review test results from previously completed tests
  - Calculated channels in Time and Frequency domains
  - Basic reporting tools

- **RTC: Real time Control**
  - Inverse and Direct Kinematics solution
  - Predictive PID real time control of servoactuators individual trajectories
  - Predictive/Adaptive Degree of Freedom control loops
  - Specimen automatic weighting and inertias characterization

PERFORMANCES TABLE		
MODEL	**SIXDYN 500**	**SIXDYN 300**
Rated PL	500 [kg]	300 kg
Frequency range	0-20 [Hz]	0-20 [Hz]
Power	35 [kW]. 400 Vac, 3 Ph + PE + N, 50/60 Hz	14 [kW]. 400 Vac, 3 Ph + PE + N, 50/60 Hz

DOF PERFORMANCES[1]						
MODEL	**SIXDYN 500**			**SIXDYN 300**		
DoF	**Displacement**	**Speed**	**Acceleration**	**Displacement**	**Velocity**	**Acceleration**
X	± 250 [mm]	± 0.70 [m/s]	± 7 [m/s^2]	± 180 [mm]	± 0.90 [m/s]	± 10 [m/s^2]
Y	± 250 [mm]	± 0.70 [m/s]	± 7 [m/s^2]	± 170 [mm]	± 0.90 [m/s]	± 10 [m/s^2]
Z	± 200 [mm]	± 0.50 [m/s]	± 8 [m/s^2]	± 130 [mm]	± 0.65 [m/s]	± 10 [m/s^2]
Roll	± 22 [deg]	± 90 [deg/s]	± 800 [deg/s^2]	± 23 [deg]	± 175 [deg/s]	± 600 [deg/s^2]
Pitch	± 22 [deg]	± 90 [deg/s]	± 800 [deg/s^2]	± 21 [deg]	± 175 [deg/s]	± 600 [deg/s^2]
Yaw	± 30 [deg]	± 120 [deg/s]	± 1000 [deg/s^2]	± 31 [deg]	± 110 [deg/s]	± 800 [deg/s^2]

[1] **Theoretical calculations in single axis tests from home position. DUT moments of inertia assumed to be those of a cube with maximum mass.**

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