Motion Simulator Controller with Revolutionary Auto-Tuning and Fault Detection

Testing and calibration solutions for sensors, inertial systems and components

- Model-based LQG digital control for unrivalled performance
- Proprietary Auto-tuning(*) function to eliminate need for manual system adjustment when payload changes
- Kalman filtering Fault Detection(*) automatically shuts down system when problem detected
- Real time data-logging
- Windows based **ProAxe Software** graphical user interface for user-friendly and intuitive operation

ProAxe Controller

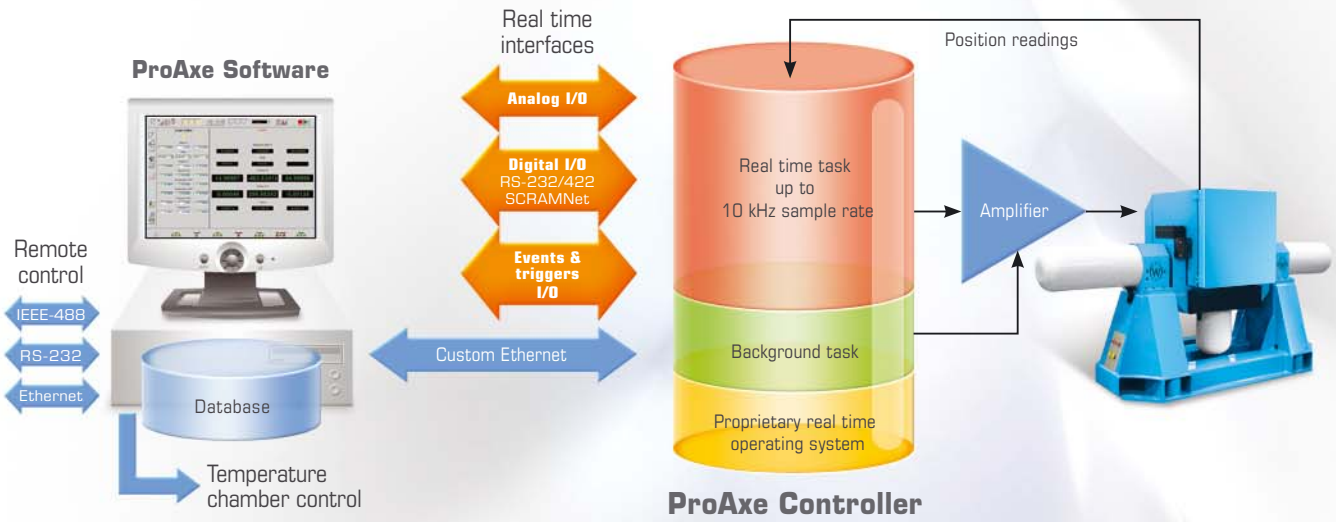
-180 -135
Phase (deg)

WUILFERT

Expertise in motion

(*) patent pending

ProAxe Controller



Wuilfert has created a breakthrough in motion simulation with its **ProAxe Controller**. The **ProAxe Controller** uses a Model-based approach, that is, a mathematical model of the physical system is integrated into the real time control algorithm.

KEY FEATURES

- 1 to 3 axes
- Up to 10 000 Hz sample rate
- Remote control interfaces :
  RS-232, IEEE-488 (optional), Ethernet (optional)
  Standard WUILFERT2 Protocol,
  Custom protocol on demand
- Real time interfaces :
  RS-232, RS-422, SCRAMNet (optional),
  2 analog I/O : ± 10V / up to 16 bits,
  4 digital TTL I/O : programmable event pulses / triggers

BENEFITS

The Wuilfert **ProAxe Controller** replaces time-consuming efforts required to manually adjust system control parameters according to payload with a fully automated **auto-tuning**(*) process. Physical parameters such as unbalance, frictions, mass, inertia, etc. are determined with a single mouse click. Accurate measures ensure optimal performance.

Using the most advanced state space **LQG control** algorithm, motion is controlled in position, rate or sinusoidal mode with a level of precision hardly conceivable with the classical PID structure.

Software sensors using **Kalman filters** provide low-noise, accurate rate and acceleration estimation (from position sensors) in real-time.

A set of signal / data conditioning strategies are available to ensure smooth and accurate dynamic motion for **real-time applications**, while maintaining position, rate and acceleration within the user-defined preset limits.

A unique **Fault Detection**(*) algorithm compares the actual versus expected behavior of the system in real time.

ARCHITECTURE

Wholly Wuilfert-designed control software and a real time operating system, **ProAxe Controller** runs on standard, off-the-shelf, hardware platform and interfaces. This makes **ProAxe Controller** a highly efficient, upgradeable and portable solution, independent of third party developments.

Thanks to its high level of integration, the Wuilfert **Proaxe Controller** is ideal for embedded applications, and is offered as a stand-alone 19" - 4 unit rack with integrated power amplifiers and master PC, or as a medium to large 19" cabinet for more power demanding applications.

The **ProAxe Controller** can operate as a stand-alone unit (Ethernet or RS-232 communication port, analog I/O and real-time digital interfaces) or in combination with the **ProAxe Software** graphical user interface for user-friendly, manual and remote operation (RS-232, IEEE-488, Ethernet).

(*) patent pending

Specifications are subject to change without notice.
Please contact Wuilfert for special requirements.

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WUILFERT
Expertise in motion

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