Advanced Mechatronics
for Motion Control

DANAHER
MOTION

Advanced Mechatronics Made Easy

Danaher Motion and The MathWorks have made advanced mechatronics for high-performance motion control as easy as 1-Design, 2-Test, 3-Innovate, and will have you up and running within hours. With industry-leading softwares MATLAB®, Simulink® and MechaWare™, award-winning SynqNet® controllers and a remote motion block (RMB), the Advanced Mechatronics Quick Start Toolkit will save your organization 10's of thousands of dollars and months of outsourced development time. The possibilities are endless and only limited by your imagination with this highly configurable and flexible system.

Design

MATLAB is a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis, and numeric computation.
Using the MATLAB product, you can solve technical computing problems faster than with traditional programming languages, such as C, C++, and Fortran.

Simulink is an environment for multidomain simulation and model-based design for dynamic and embedded systems. It provides an interactive graphical environment and a customizable set of block libraries that let you design, simulate, implement, and test a variety of time-varying systems, including communications, controls, signal processing, video processing, and image processing.
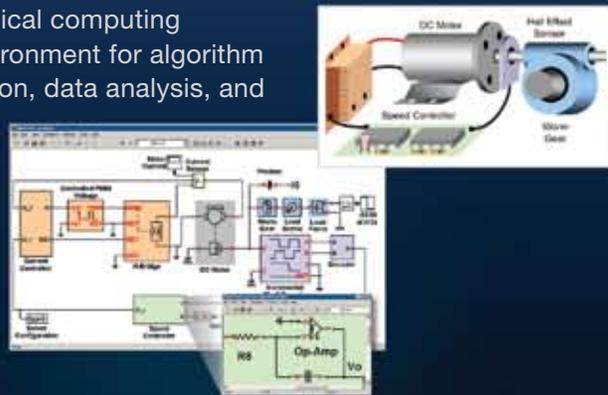
Test

System resonance and vibration control are serious issues in more complex motion systems. Standard control algorithms (PIV and PID) may not provide a sufficient level of motion performance. MechaWare solves this problem by providing a streamlined workflow between control model development and realtime machine testing, allowing mechanical and software engineers to work together and test and measure real time machine performance in motion.

MechaWare Features

- 64-bit (double precision) calculations with ZMP controller
- Complex gearing, following methods
- Gain switching, vibration control
- Notch, Resonator, Low-Pass, etc., Filters
- Sophisticated MIMO plant models

Transforming the Way Engineers Work

In today's highly-competitive environment, it is more important than ever to operate quickly and cost effectively. For more than 20 years, Danaher Motion and The MathWorks have provided state-of-the art products for OEMs in a wide range of markets and applications. Today, they have joined efforts to combine technologies for the benefit of OEMs and provide a viable solution for machine build simulation in motion.

The Advanced Mechatronics Quick Start Toolkit (AMQST) transforms the way mechanical and software engineers work within the high performance motion control environment, and provides a quick and cost effective solution to bring machines to market faster. Outperform the competition and provide your engineers with the tools they need to succeed in today's dynamic marketplace – the AMQST.

💡 Innovate

Designed for growth and flexibility, the SynqNet eZMP stand alone motion controller integrates the full power, flexibility, and connectivity of an industrial computer with the performance of real time, 64 bit multiaxis motion and I/O control. The open, embedded PC architecture with Windows XPe operating system allows motion and machine control development in Visual Basic, C/C++/C#, and other third party software. Flexible software libraries and customizable control algorithms for best fit motion performance allow you to implement dynamic designs as a stand alone controller or connect to a host PC or factory network.

Graphs

MechaWare OFF — Within Settle Target
t 1 = 50.0 ms
t 3 = 10.0 ms

MechaWare ON — Within Settle Target
t 2 = 40.0 ms
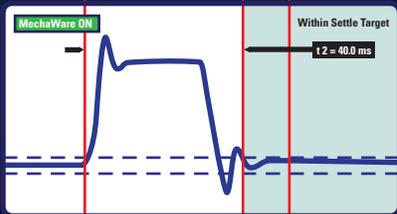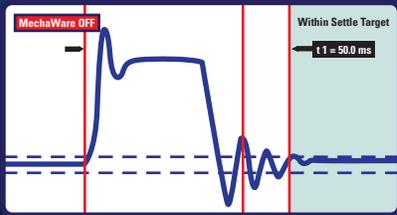
Savings in Move Time

Reduction in move time:	50 - 40 = 10ms
% Reduction in move time:	10/50 = 20%
# Moves per hour:	25,000
# Additional moves per hour:	5,000

The ZMP-SynqNet Series PC-based controllers provide machine builders with the ultimate in highperformance motion control. The 64-bit ZMP controllers utilize a 466MHz PowerPC processor for optimum flexibility and speed. With a significant increase in processing power, the ZMP family of controllers are available in PCI and CPCI-3U form factors.

The ZMP-SynqNet Series controllers offer servo update rates up to 48kHz, allowing optimum control of machines requiring high levels of coordination and synchronization between axes.

The Soonhan SynqNet Remote Motion Block (RMB) easily connects a stepper motor, drive or position mode AC-servo drive to a SynqNet controller to get you up and running in a matter of hours. Each RMB supports up to two axes including encoder feedback, transceivers, dedicated I/O and generous user I/O.

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