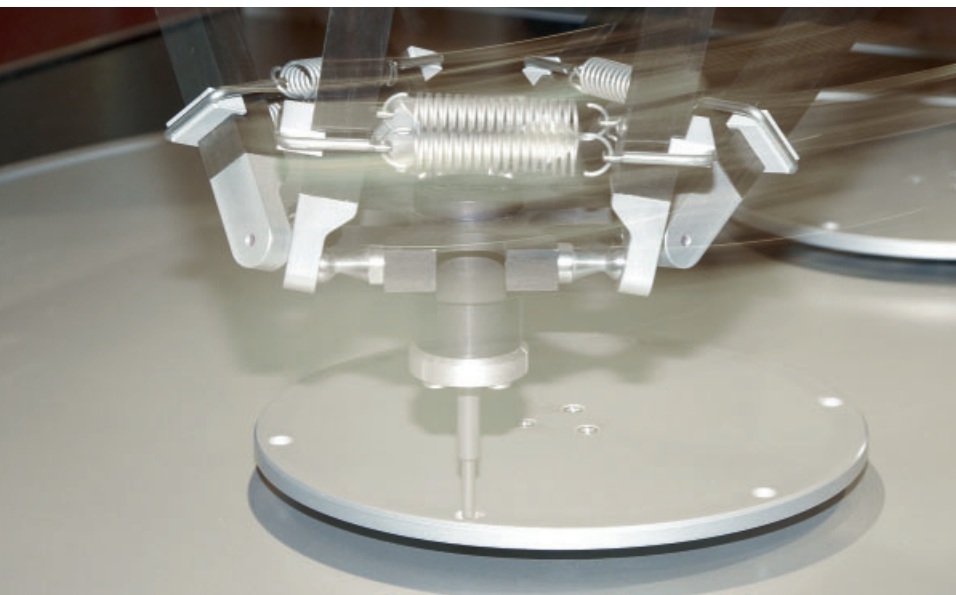


Robotics integration in TwinCAT enables optimum synchronization between robots and standard Motion Control



TwinCAT automation software now permits the integration of robots (delta kinematics, SCARA) as well as their interaction and synchronization with existing Motion Control functions. This results in seamless integration into the overall control system and being able to dispense with additional robot CPUs. The PC-based controller from Beckhoff unites PLC, Motion Control and robotics all on one hardware and software platform.

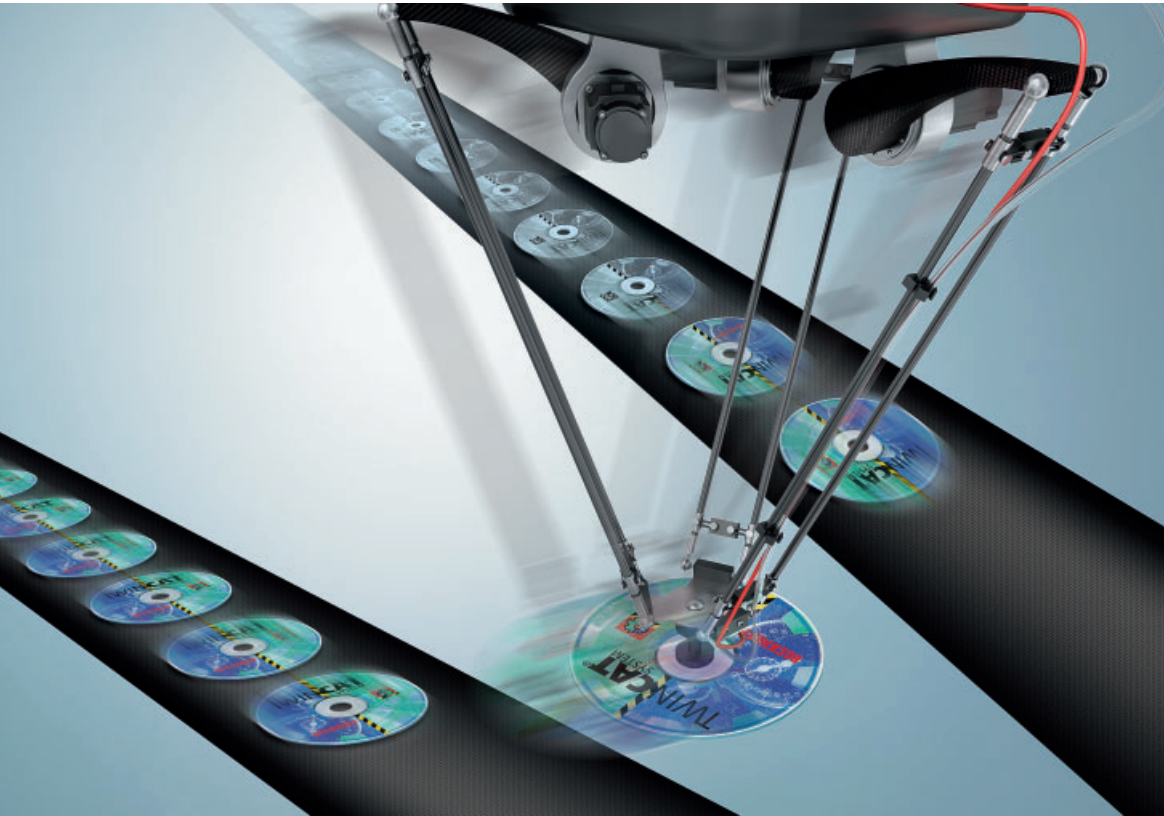
Robotics, Motion Control and PLC on one PC platform



New: robot integration in TwinCAT enables optimum synchronization between robots and standard Motion Control.

"TwinCAT Kinematic Transformation" software is the first step toward integrating robot control into the TwinCAT automation software suite. The PLC, Motion Control, HMI and robotic functions run on one powerful Industrial PC CPU. This provides the user with a whole series of advantages:

- | eliminating the additional CPU required for robot control
- | reduction in engineering costs: configuration, parameterization and diagnostics in one system
- | TwinCAT, a well-known tool that adheres to global standards for configuration, programming and diagnostics
- | no friction losses due to the interaction of various CPUs for PLC, motion and robotics
- | Higher performance and accuracy due to direct interfaces; complex communication between CPUs is no longer required.



"TwinCAT Kinematic Transformation" for pick-and-place applications; robotic and Motion Control functions can be optimally synchronized using TwinCAT NC PTP or NC I.

TwinCAT Kinematic Transformation integrates itself transparently in the existing Motion Control world: robotic and Motion Control functions can be optimally synchronized using TwinCAT NC PTP (point-to-point axis positioning) or NC I (axis interpolation in three dimensions). All NC characteristics, such as "cam plate" or "flying saw" (synchronization of a slave axis with a moving master axis) can be combined as desired on a common hardware and software platform.

TwinCAT supports various parallel and serial kinematics, such as those used for pick-and-place tasks. Regarding programming, the software is based on TwinCAT NC I and G-Code (DIN 66025). The target coordinates are programmed conveniently in the Cartesian coordinate system. The Kinematic module takes care of conversion to the associated motor position (reverse transformation). In addition,

the dynamic model for torque pre-control can be calculated.

The kinematic system can be selected conveniently in TwinCAT System Manager. The kinematic channel is used to parameterize the type (e.g. delta), bar lengths and offsets. Mass and mass inertia values can be specified for dynamic pre-control. The "flying saw" and "cam plate" functions enable robot synchronization with conveyor belts for picking or placing workpieces, for example. These applications are met frequently in the material handling and packaging industries.

www.beckhoff.com/kinematics