KPA Motion Development Kit

.konig

KPA **Mo**tion **D**evelopment **K**it (MoDK) enables the development of linear and coordinated motion applications for a hardware class on a specific OS.

1 Introduction

Library for single- and multiple- axes control applicable in CNC solutions in terms of PLCopen standard.

1.1 Motion integration package (MoIP)

- MDK included (see MDK flyer for details)
- Motion "C/C++ API"
- Operation System Abstraction Layer (OSAL) (optionally in source code)
- Process filed bus Abstraction Layer (BUSAL) supporting CiA402, SERCOS and simulation (optionally in source code)
- More than 20 samples in source code and documents:
  - Motion architecture, white paper,
  - MoDK manuals, programmers guide,
  - API (Application Programming Interface) help
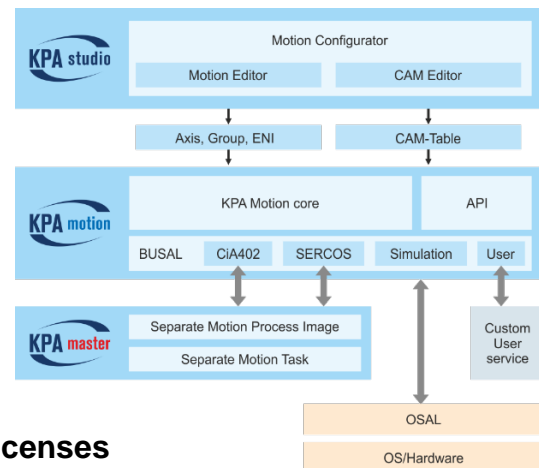
1.2 Motion Runtime package (MoRT) with licenses

- Binaries and user manuals (development manuals included in MoIP)
- 2x KPA EtherCAT Master Standard Licenses (ETG 1500 "class A" master); 1x CoM and 10x LiM each
- 1x KPA EtherCAT Master Full (ETG 1500 "class A" including all FP and Extensions); 1x CoM and 10x LiM

1.3 KPA EtherCAT Studio executables

- KPA EtherCAT Studio Premium run-time including all plug-ins and user manuals for configuration and diagnostics of EtherCAT® networks.
- Motion Configurator
- 1x KPA EtherCAT Studio license

1.4 MDK/MoDK Tutorials

- How to use KPA EtherCAT Master for selected OS
- How to use KPA EtherCAT Studio with Master for selected OS
- How to configure EtherCAT network, DC, modules and other specifics

1.5 Simulation V-REP

Virtual robot experimentation platform
- V-REP Viewer
- V-REP few sample models (further models are offered as service)

1.6 Support and Maintenance (S&M)

- Technical support and updates of Motion and EtherCAT Master/Studio for selected OS with access to Build Portal and Ticket System for one year.
- Prolongation on annual base upon request

2 Runtime Software

- Trajectory generated online in one cycle
- Instantaneous reaction on events
- Jerk limited using spline interpolation
- No transition (blending) window
- Cyclic synchronous position mode (no stop)
- Feed forward control of velocity and torque

2.1 KPA Motion Libraries

2.2 Linear Motion (LiM)

Applications: single axis drive control, e.g. pressing, drilling.
Functionality:
- Linear Movement of single axis
- Program Coordinate System (PCS)
- Requirement: KPA Master Standard 1.5 or higher

2.3 Coordinated Motion (CoM)

Applications examples: bending, welding, drilling, milling.
Functionality:
- All LiM functionalities
- Multi-axes servo drive control with coordinated X, Y, Z axes
- Instantaneous transformations between PCS, MCS and ACS for 2D, 3D applications
- Coordinated motion in cylinder and polar coordinates
- Circular and helical motions

Requirement: KPA Master Standard 1.5 or higher

2.4 KPA Motion Configurator

Plugin to KPA Studio with two function groups:
- **Offline configuring**
  Grouping of axes, selection of drive profiles, setting of parameters, and mapping to process image
- **Online test**
  Controls with command and status for moving, homing and jogging

Requirement: KPA Studio Premium Version 2.0 or higher

3 Comparison of MoDK and MoDK trial

Item	Criteria	MoDK	MoDK trial
	Purpose	**Development**	**Evaluation**
1	Motion Integration Package (MoIP)	Yes	Yes
2	MoDK Tutorials	Yes	Yes
3	Runtime licenses (MoRT)	3 [1]	Trial [2]
4	KPA EtherCAT Studio License	Premium unlimited	Premium 3 months
5	Support & Maintenance [3]	1 year	Startup support
6	Optional Build portal for OS	1 year	3 months

[1] 1x Full license and 2x Standard license.
[2] Trial Master works for one hour in OPERATIONAL and cannot be licensed
[3] S&M-conditions you can find at our customer portal area

MoDK and MoDK Trial are available through Customer portal and by contacting Sales: sales@hkaco.com

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