

Benefits

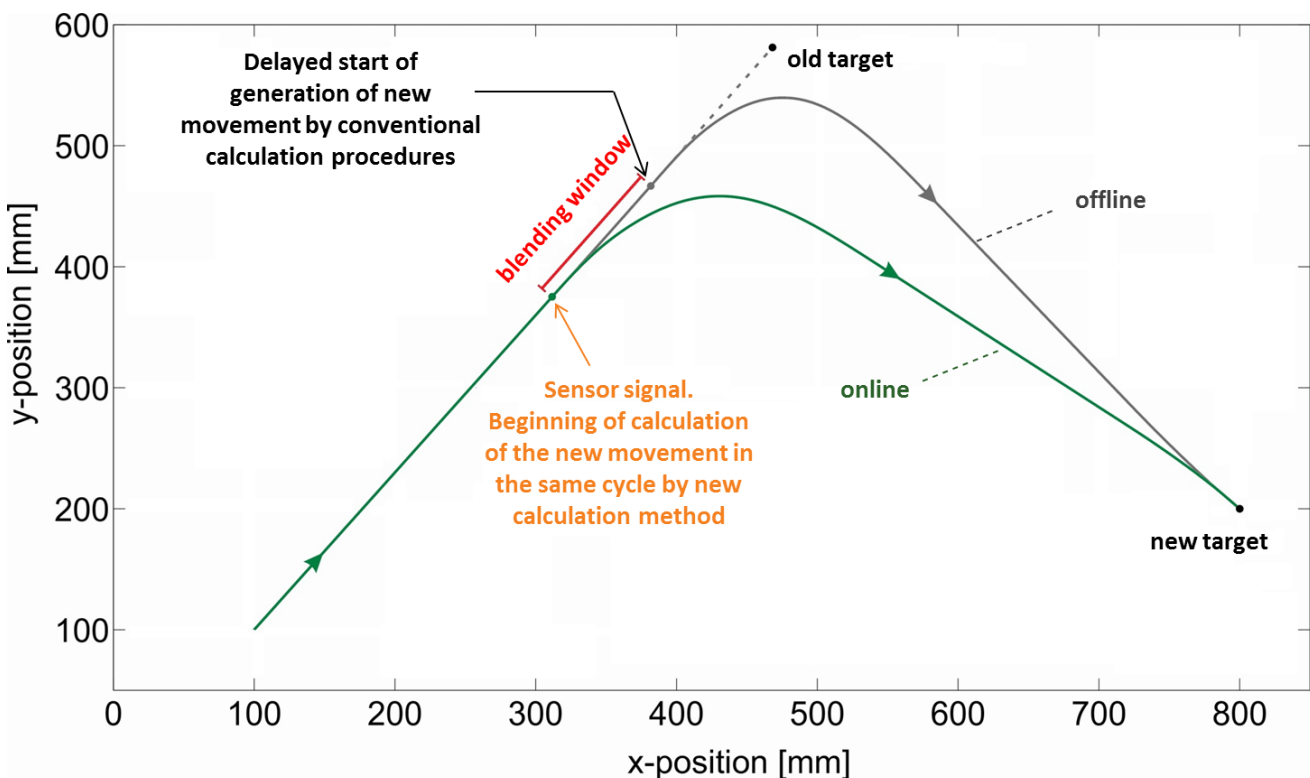
- PLC Open T1, T4 compliant
- Instantaneous reaction on events
- Online trajectory generation within one cycle
- Jerk limited movements using spline interpolation
- Interface to simulation tool V-REP **)

Applications

- Linear single axis for drilling and pressing
- Synchronized, coordinated multi axis movements e.g. milling, welding and bending

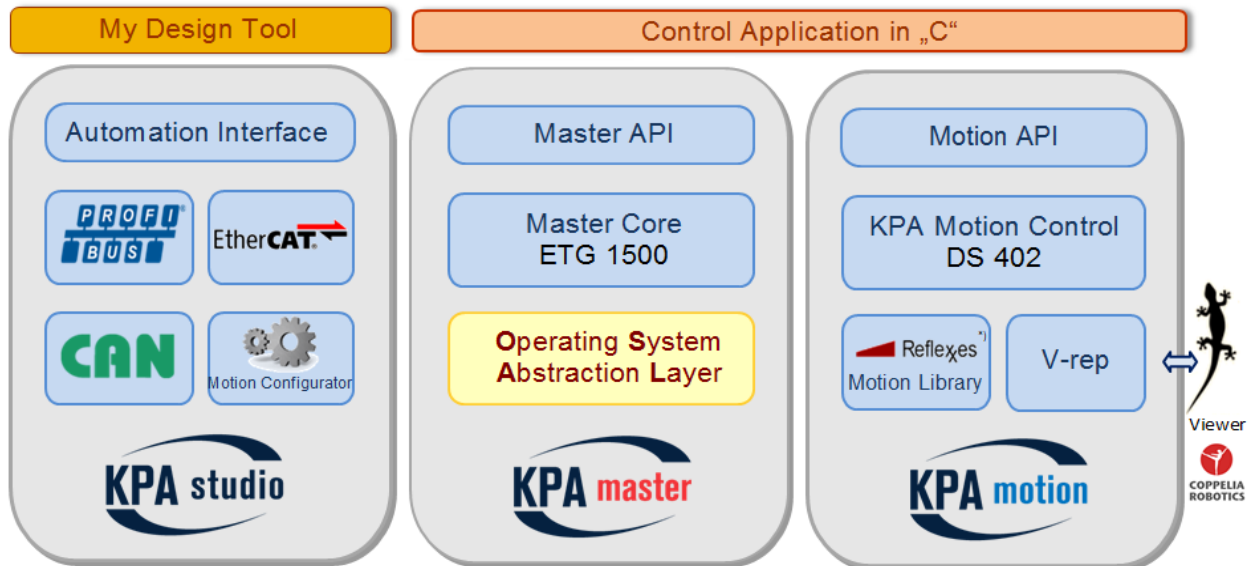
Reaction on event

Picture below shows a comparison between conventional calculation methods and the online trajectory generation concept implemented in KPA Motion.



Both axis start to reach the old target position until an **event** in causing a change of the target position. A blending window is necessary in case of standard approach according to PLC Open Part 4 (grey line). KPA Motion calculates the multi-axis motion trajectories and starts the new movement starting in the cycle of the event (**green line**).

The **KPA Motion** library for EtherCAT controls drives using “C” API. It is an extension to the KPA EtherCAT Master and available for various operating systems.



Linear Motion (LiM) of single axis with Program Coordinate System (PCS)

KMC_Halt:	Stops moving and transfers state to 'Standstill'
KMC_Home:	Searches home using selected homing method
KMC_MoveLinearAbsolute:	Moves axes linear to a specified absolute position
KMC_MoveLinearVelocity:	Moves axes linear with a specified velocity
KMC_Stop:	Stops movement via ramp and transfers to state 'Stopping'
KMC_TouchProbe:	Records positions at trigger event

Coordinated Motion (CoM) of X, Y, Z axis with PCS and MCS transformation

KMC_MoveCircularAbsolute:	Moves axes circular to an absolute position using circle center point on the border or radius
KMC_MoveHelicalAbsolute:	Performs helical movement
KMC_SetDynamicModel:	Set the parameters of an optional custom dynamics model that is used for feed forward torque and velocity control

*) Reflexxes RML is a patented motion library owned by Reflexxes GmbH, Germany

**) from coppelia robotics