TwinCAT Library: Upgrading 2.2.8 to 3.0.2

Software Change Notification

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Table of Contents

1 Summary

The interface of the major release 3 has been simplified, but at the expense of some impact on customer code, especially the configuration part. This release supports code migration to TwinCAT 3 by providing libraries for TC2 and TC3 with identical features.

2 Products affected

Any customer code that used TwinCAT triamec library 2.2.8 or older that is to be upgraded to newer versions. Affected hardware

- TS350, TS351, TS150, TS151 revision B to D
- TIOB
- TSP350 and TSP700 revision A.

3 Description of change

The old library does not support TwinCAT 3. Before migration to TwinCAT 3 we propose to upgrade the TwinCAT 2 code to the TwinCAT 2 library 3.0.2 using this guide. Then switch to TwinCAT 3 and use our corresponding TwinCAT 3 library 3.0.2.

The configuration part of the new library was simplified with the following changes, where axes[1] is an object of type TL_AxisSlow and Trialink is the object of type TL_Trialink.

3.1 New parameters

- Trialink.Config.RootFolder := 'C:\Machine\';
  Use this to activate error file logging into a newly generated subfolder: 'triamecLog'
- There is a new hook “TL_Config” for configuration constants, see below.

3.2 General configuration parameters

Old libraries:

- axes[1].simulate := FALSE;
- axes[1].MC_axis.station := 17;
- axes[1].MC_axis.secondAxis := FALSE;
- axes[1].MC_axis.gear_factor := 180/PI;
- axes[1].MC_axis.mod_wrap := 360;

New libraries:

- axes[1].Config.Simulate := FALSE;
- axes[1].Config.Station := 17; (* The drive address *)
- axes[1].Config.***SubAxis*** := ***TL_Config***.SubAxis.FirstAxis;
  (* is this the second axis of a TS150 dual drive? *)
- axes[1].Config.GearFactor := 180/PI;
  (* multiplication factor drive to PLC position units *)
- axes[1].Config.ModuloWrap := 360; (* modulo wrap for rotation axes *)

3.3 Reference parameters

See application note AN108 for details on the homing procedures.

Old libraries

- axes[1].MC_axis_Home.Homing.Method:=TL_C.AxisPar.Environment.ReferenceMethod.Immediate;
- axes[1].MC_axis_Home.homing.FirstMask := 16#01;
- axes[1].MC_axis_Home.Homing.FirstDistance := -370.0;
- axes[1].MC_axis_Home.Homing.FirstVelocity := 30.0;
- axes[1].MC_axis_Home.Homing.IndexDistance := 20.0;
- axes[1].MC_axis_Home.Homing.IndexVelocity := 10.0;

New libraries

- axes[1].Config.ReferenceMethod := TL_Config.ReferenceMethod.SetPosition;
- axes[1].Config.ReferenceFirstMask := TL_Config.ReferenceFirstInput.AuxIn1;
  (* IO mask for homing first search *)
- axes[1].Config.ReferenceFirstDistance := -370.0; (* maximum distance of first move*)
- axes[1].Config.ReferenceFirstVelocity := 30.0; (* velocity of first search *)
- axes[1].Config.ReferenceIndexDistance := 20.0;
- axes[1].Config.ReferenceIndexVelocity := 10.0;

3.4 Reference setPosition input

Old libraries

- axes[1].MC_axis_Home.Position := ...;

New libraries

- axes[iAxis].referencePosition := ...;

4 Consequences

Migration requires the following changes to the user code:

In the ConfigurationManager function block replace the configuration settings as shown above and add a path definition to the Trialink object as shown above to activate the error-log-file feature.

In the reference control function replace the setPosition input as shown above.