

BECKHOFF New Automation Technology

General Information | EN

TF5400

TwinCAT 3 | Advanced Motion Pack

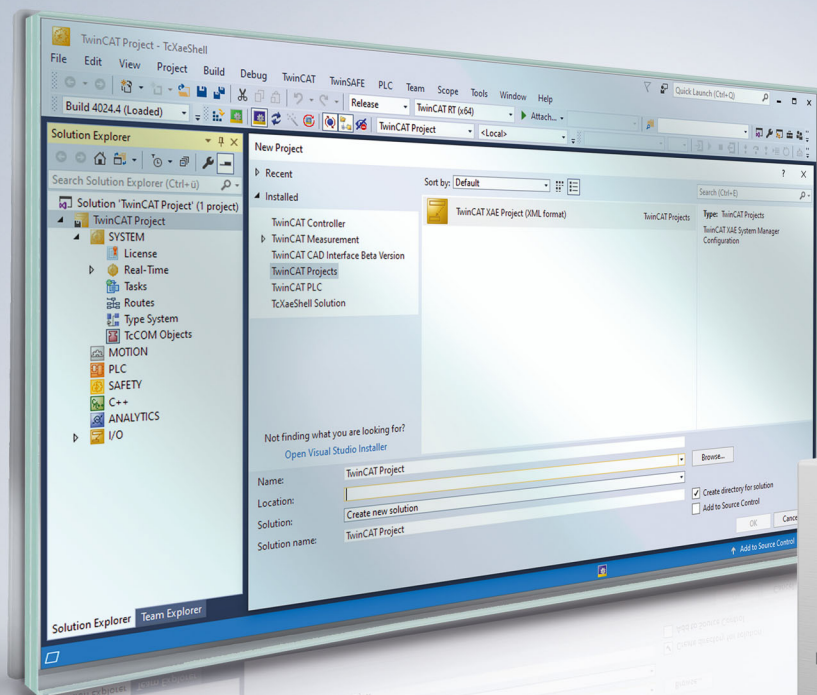


Table of contents

1 Foreword..... 5

1.1 Notes on the documentation 5

1.2 For your safety 6

1.3 Notes on information security..... 7

2 The TF5400 Advanced Motion Pack Documentation 8

3 Installation 9

4 Support and Service 11

1 Foreword

1.1 Notes on the documentation

This description is intended exclusively for trained specialists in control and automation technology who are familiar with the applicable national standards.

The documentation and the following notes and explanations must be complied with when installing and commissioning the components.

The trained specialists must always use the current valid documentation.

The trained specialists must ensure that the application and use of the products described is in line with all safety requirements, including all relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been compiled with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without notice.

Claims to modify products that have already been supplied may not be made on the basis of the data, diagrams, and descriptions in this documentation.

Trademarks

Beckhoff®, TwinCAT®, TwinCAT/BSD®, TC/BSD®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, Safety over EtherCAT®, TwinSAFE®, XFC®, XTS®, and XPlanar® are registered and licensed trademarks of Beckhoff Automation GmbH.

If third parties make use of the designations or trademarks contained in this publication for their own purposes, this could infringe upon the rights of the owners of the said designations.



EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany

Copyright

© Beckhoff Automation GmbH & Co. KG, Germany.

The distribution and reproduction of this document, as well as the use and communication of its contents without express authorization, are prohibited.

Offenders will be held liable for the payment of damages. All rights reserved in the event that a patent, utility model, or design are registered.

Third-party trademarks

Trademarks of third parties may be used in this documentation. You can find the trademark notices here: <https://www.beckhoff.com/trademarks>.

1.2 For your safety

Safety regulations

Read the following explanations for your safety.

Always observe and follow product-specific safety instructions, which you may find at the appropriate places in this document.

Exclusion of liability

All the components are supplied in particular hardware and software configurations which are appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation, and drive technology who are familiar with the applicable national standards.

Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

Personal injury warnings

DANGER

Hazard with high risk of death or serious injury.

WARNING

Hazard with medium risk of death or serious injury.

CAUTION

There is a low-risk hazard that could result in medium or minor injury.

Warning of damage to property or environment

NOTICE

The environment, equipment, or data may be damaged.

Information on handling the product



This information includes, for example:
recommendations for action, assistance or further information on the product.

1.3 Notes on information security

The products of Beckhoff Automation GmbH & Co. KG (Beckhoff), insofar as they can be accessed online, are equipped with security functions that support the secure operation of plants, systems, machines and networks. Despite the security functions, the creation, implementation and constant updating of a holistic security concept for the operation are necessary to protect the respective plant, system, machine and networks against cyber threats. The products sold by Beckhoff are only part of the overall security concept. The customer is responsible for preventing unauthorized access by third parties to its equipment, systems, machines and networks. The latter should be connected to the corporate network or the Internet only if appropriate protective measures have been set up.

In addition, the recommendations from Beckhoff regarding appropriate protective measures should be observed. Further information regarding information security and industrial security can be found in our <https://www.beckhoff.com/secguide>.

Beckhoff products and solutions undergo continuous further development. This also applies to security functions. In light of this continuous further development, Beckhoff expressly recommends that the products are kept up to date at all times and that updates are installed for the products once they have been made available. Using outdated or unsupported product versions can increase the risk of cyber threats.

To stay informed about information security for Beckhoff products, subscribe to the RSS feed at <https://www.beckhoff.com/secinfo>.

2 The TF5400 Advanced Motion Pack Documentation

The TF5400 Advanced Motion Pack Documentation is subdivided into:

- [TF511x TwinCAT 3 Kinematic Transformation](#),
- [TF5410 TwinCAT 3 Motion Collision Avoidance](#),
- [TF5420 TwinCAT 3 Motion Pick-and-Place](#),
- [TF5430 TwinCAT 3 Planar Motion](#).

3 Installation

The TF5400 TwinCAT 3 Advanced Motion Pack installation package contains the necessary components for the TwinCAT functions:

- TF5110 - TF5112 TwinCAT 3 Kinematic Transformation
- TF5410 TwinCAT 3 Motion Collision Avoidance
- TF5420 TwinCAT 3 Motion Pick-and-Place
- TF5430 TwinCAT 3 Planar Motion.

The installation differs from TwinCAT version 3.1 Build 4026 onwards compared to the previous versions.



Make sure that you install the Advanced Motion Pack both on the development computer and on the target system.

Installation requirements

The installation requires TwinCAT 3 and TF5000 NC PTP.

Target system

Windows 10

- Up to TF5400 v3.1.10.x: x86 and x64
- From TF5400 v3.2.x: only x64

TwinCAT Package Manager: Installation (TwinCAT 3.1 Build 4026)

As of TwinCAT 3.1 Build 4026, TwinCAT products are installed via the TwinCAT Package Manager. Detailed instructions on installing products can be found in the chapter [Installing workloads](#) in the [TwinCAT 3.1 Build 4026 installation instructions](#).

You can obtain a basic TwinCAT installation via the following workloads:

- TwinCAT.Standard.XAE (Engineering)
- TwinCAT.Standard.XAR (Runtime)

For TF50x0 | TwinCAT 3 NC PTP, prerequisite for TF5400, please install the workloads:

- TF5000.NcPtp.XAE (Engineering)
- TF5000.NcPtp.XAR (Runtime)

For TF5400, please install the workloads:

- TF5400.AdvancedMotionPack.XAE (Engineering)
- TF5400.AdvancedMotionPack.XAR (Runtime)

In addition, the installation of the TwinCAT Scope is recommended:

- TE1300.ScopeViewProfessional.XAE (Engineering)
- TF3300.ScopeServer.XAR (Runtime)

TwinCAT Setup: Installation (TwinCAT 3.1 Build 4024 and earlier)

TF5400 TwinCAT Advanced Motion Pack requires a TwinCAT 3 Full Installation up to TwinCAT 3.1 Build 4024 and is installed via a setup.

TF5110-TF5113 TwinCAT 3 Kinematic Transformation L1-L4

The TF5110 - TF5113 TwinCAT 3 Kinematic Transformation function is divided into four different levels, depending on the number of transformation axes. A higher level contains all sub-levels.

Level 1: Supports static transformation. This includes translation and rotation of the coordinate system.

Level 2: Supports level 1 and simple (mainly 2D) kinematic transformations such as H-bot and 2D parallel kinematics.

Level 3: Supports level 2 and more complex (3D, 4D) kinematic transformations such as delta robots.

Level 4: Supports level 3 and complex kinematic transformations (up to 6D).

Both the TF5400.AdvancedMotionPack.XAR workload and the TF5400 setup only contain the runtime components for TF5110-TF5112 TwinCAT 3 Kinematic Transformation L1-L3.

● **TF5113 | TwinCAT 3 Kinematic Transformation L4**

i TF5113 | TwinCAT 3 Kinematic Transformation L4 is subject to special legal restrictions. Please get in touch with your Beckhoff contact person.

4 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Download finder

Our [download finder](#) contains all the files that we offer you for downloading. You will find application reports, technical documentation, technical drawings, configuration files and much more.

The downloads are available in various formats.

Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for [local support and service](#) on Beckhoff products!

The addresses of Beckhoff's branch offices and representatives round the world can be found on our internet page: www.beckhoff.com

You will also find further documentation for Beckhoff components there.

Beckhoff Support

Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

- support
- design, programming and commissioning of complex automation systems
- and extensive training program for Beckhoff system components

Hotline: +49 5246 963-157
e-mail: support@beckhoff.com

Beckhoff Service

The Beckhoff Service Center supports you in all matters of after-sales service:

- on-site service
- repair service
- spare parts service
- hotline service

Hotline: +49 5246 963-460
e-mail: service@beckhoff.com

Beckhoff Headquarters

Beckhoff Automation GmbH & Co. KG

Huelshorstweg 20
33415 Verl
Germany

Phone: +49 5246 963-0
e-mail: info@beckhoff.com
web: www.beckhoff.com

Trademark statements

Beckhoff®, TwinCAT®, TwinCAT/BSD®, TC/BSD®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, Safety over EtherCAT®, TwinSAFE®, XFC®, XTS® and XPlanar® are registered trademarks of and licensed by Beckhoff Automation GmbH.

More Information:
www.beckhoff.com/tf5xxx

Beckhoff Automation GmbH & Co. KG
Hülshorstweg 20
33415 Verl
Germany
Phone: +49 5246 9630
info@beckhoff.com
www.beckhoff.com

