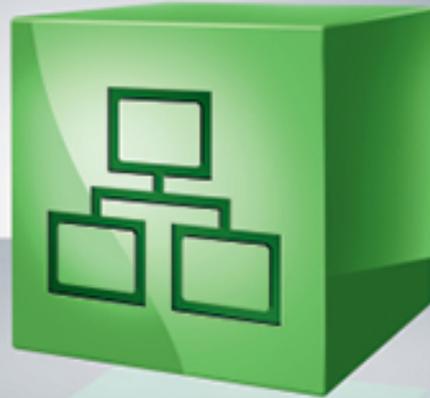


TwinCAT 3 Industry specific



Manual

TC3 Wind Framework

TwinCAT 3

Version: 1.0
Date: 2017-06-01
Order No.: TF8310

BECKHOFF

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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared 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 prior announcement. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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The EtherCAT Technology is covered, including but not limited to the following patent applications and patents:

EP1590927, EP1789857, DE102004044764, DE102007017835

with corresponding applications or registrations in various other countries.

The TwinCAT Technology is covered, including but not limited to the following patent applications and patents:

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1.2 Safety instructions

Safety regulations

Please note the following safety instructions and explanations!
Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

Exclusion of liability

All the components are supplied in particular hardware and software configurations 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 engineering who are familiar with the applicable national standards.

Description of symbols

In this documentation the following symbols are used with an accompanying safety instruction or note. The safety instructions must be read carefully and followed without fail!

 DANGER	<p>Serious risk of injury! Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.</p>
 WARNING	<p>Risk of injury! Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.</p>
 CAUTION	<p>Personal injuries! Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.</p>
 Attention	<p>Damage to the environment or devices Failure to follow the instructions associated with this symbol can lead to damage to the environment or equipment.</p>
 Note	<p>Tip or pointer This symbol indicates information that contributes to better understanding.</p>

2 Product description

The TwinCAT Wind Framework consists of several components, providing essential functionalities for the automation software of wind energy turbines. They are designed to support the development, commissioning and maintenance of a wind turbine control system. The TwinCAT Wind Framework consists of Modules, Libraries and Applications. Modules are providing the essentials functionalities in the real-time context based on the TcCOM-Architecture. By the Libraries API's are provided to access and use the Framework. In addition the Applications are providing tools to interact with the Framework or collaborating systems.

 Note	<p>TwinCAT Wind Framework</p> <p>This public information is only a limited overview about the TwinCAT Wind Framework. Please, do not hesitate to contact us for a full documentation, support or feedback by email: TcWind@beckhoff.com</p>
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Content overview

Modules		
<p>TcWStatus</p> Monitoring Supervision Event-Handling	<p>TcWParameter</p> Settings Adjustments Configurations	<p>TcWCommand</p> Remote Commands Manual Interaction Action Triggering
<p>TcWMean</p> Average Calculation Long-Term Evaluation	<p>TcWCapture</p> Sampling of Values Long-Term Recording	<p>TcWUser</p> User Management Authorization Credentials
<p>TcWConnect</p> ADS Server Diagnostics Online Monitoring	<p>TcWDatabase</p> Database Interface Storage of Data Historical Monitoring	<p>TcWTrace</p> Event-Log High Resolution Pre/Post-Trigger

Programming	
<p>TcWindLib</p> PLC Library Function and Functionblocks	<p>TcWindSDK</p> C++ Interface Header Files and Libraries

Applications	
<p>TcWindView</p> Engineering Visualization Debugging and Commissioning Tool	<p>TcWindDatabase</p> SQL Database Application Tables, Procedures, Views
<p>TcWindTurbine Template</p> Fundamental Project Template Module Wind Turbine Application	<p>TcWind ADS / SQL Client</p> C#/.NET Client Applications Interface Demonstration Projects
<p>TcWindPlcTraining</p> PLC Demonstration Project Modular Cooling Subsystem	<p>TcWindCppTraining</p> C++ Demonstration Project Modular Cooling System

3 Installation

3.1 System requirements

For first tests with TwinCAT Wind Framework a demonstration setup is available on [Beckhoff website](#).

Technical data	TF8310 TwinCAT 3 Wind Framework
Target system	Windows 7, Windows 8, Windows 10 PC (x86, x64)
Min. TwinCAT version	3.1.4020.0
Min. TwinCAT level	TC1200 TC3 PLC or TC1300 TC3 C++

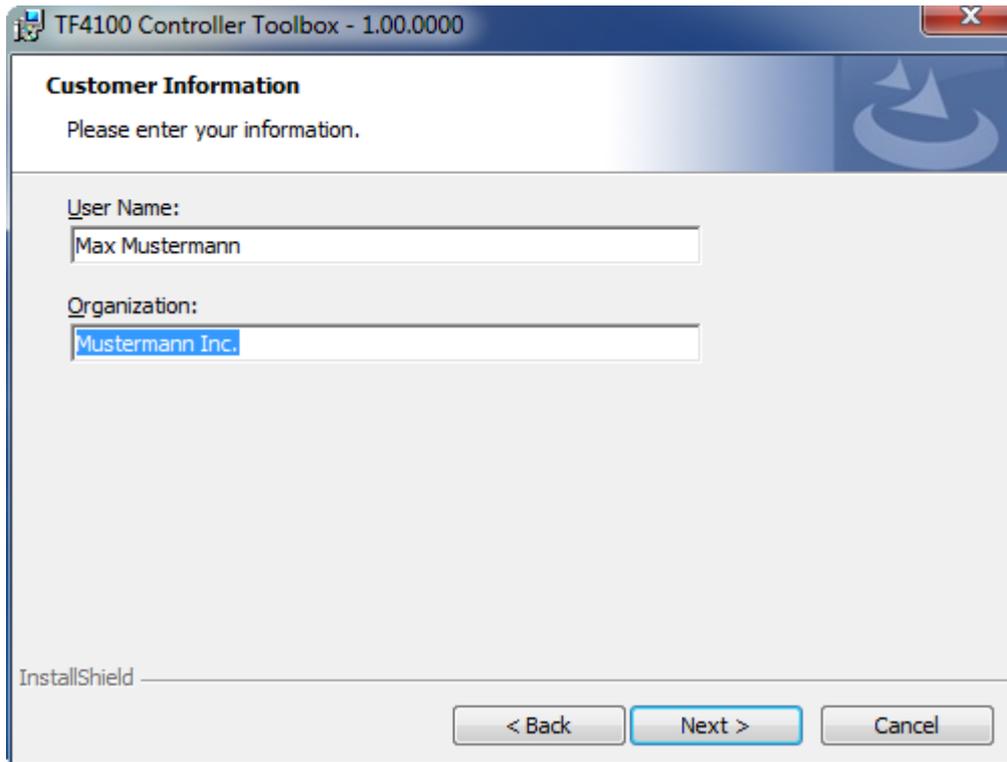
3.2 Installation

Description of the installation procedure of a TwinCAT 3 Function for Windows-based operating Systems.

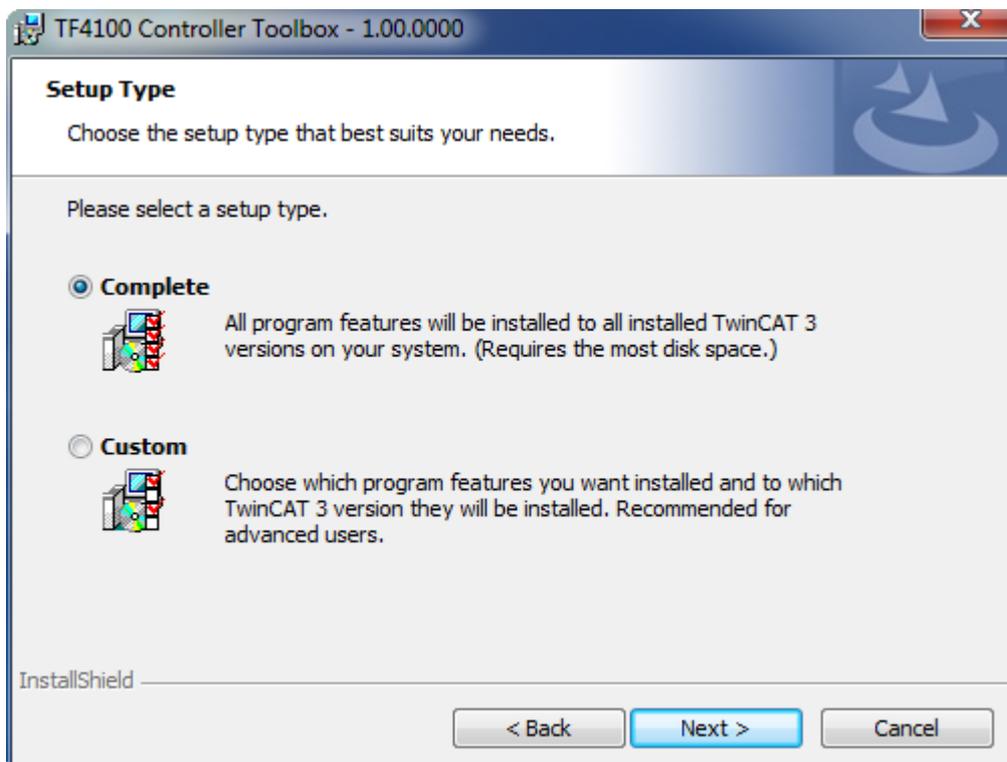
1. Double-click the downloaded setup file *TFxxxx*.
Please note: Under Windows 32-bit/64-bit, please start the installation with "Run as Administrator" by right-clicking the setup file and selecting the corresponding option in the context menu.
2. Click **Next** and accept the license agreement.



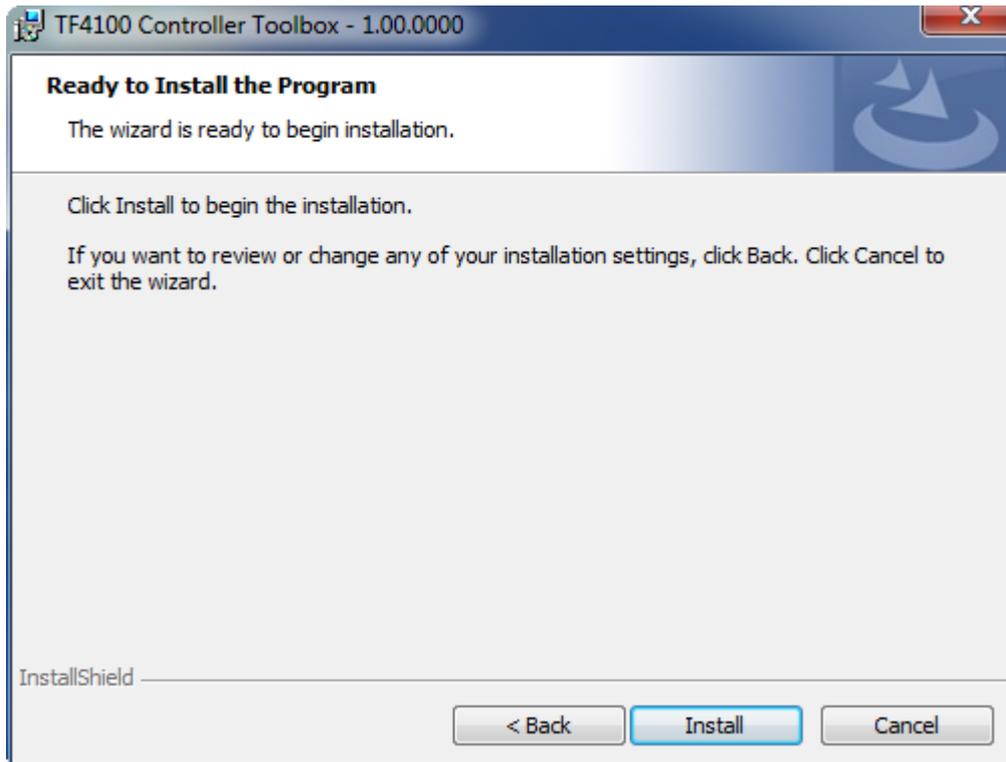
3. Enter your user information in the specified area.



4. To install the full product, including all sub-components, please choose **Complete** as the Setup Type. Alternatively, you can also install each component separately by choosing **Custom**.

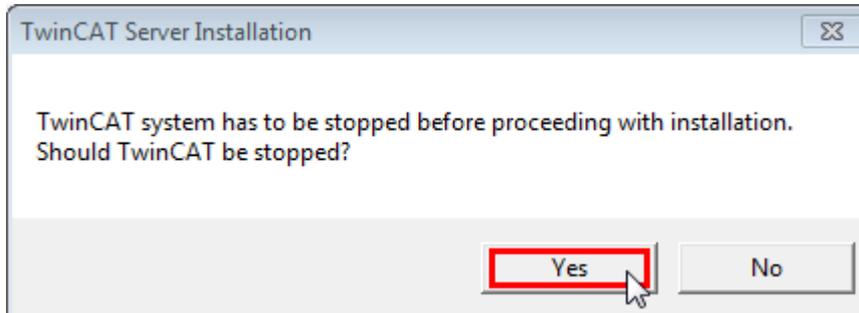


5. Click **Next** and **Install** to start the installation.

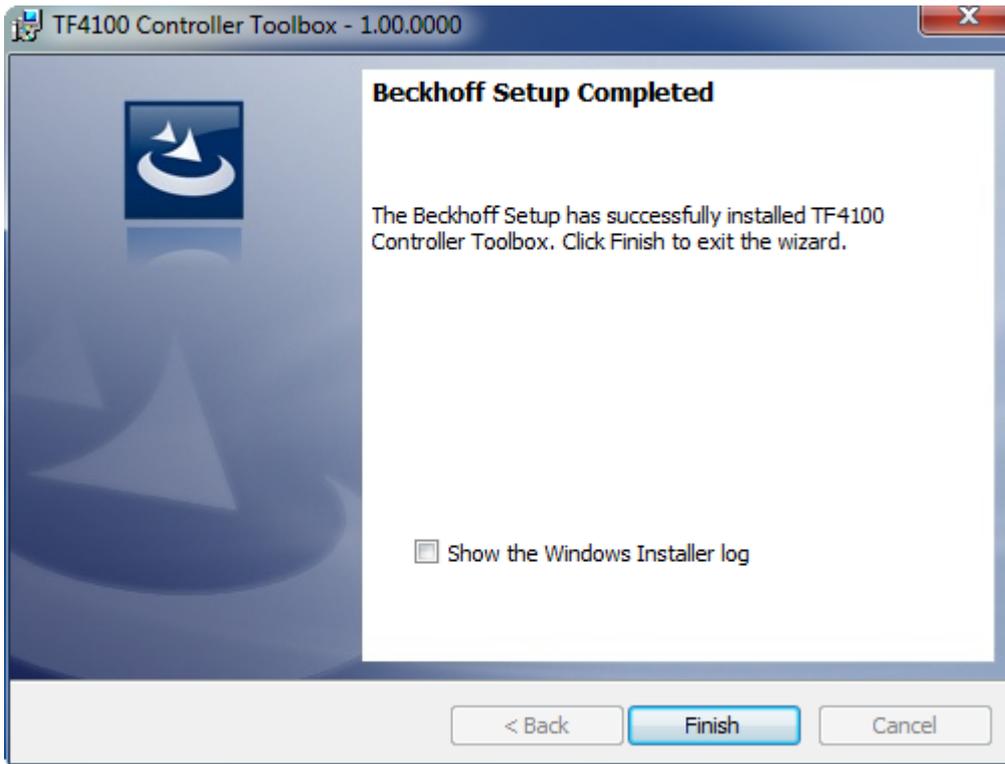


The TwinCAT system must be stopped before proceeding with installation.

6. Confirm the Dialog with **Yes**.



7. Select **Finish** to end the installation process.



⇒ The installation is now complete.

After a successful installation, the TC 3 Function needs to be [licensed](#). [[▶ 11](#)]

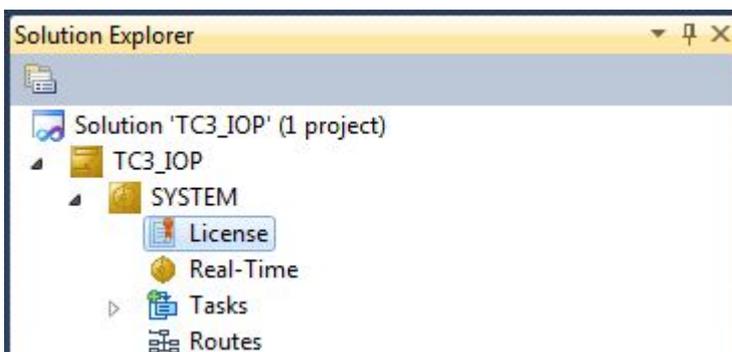
3.3 Licensing

The TwinCAT 3 functions are available both as a full and as a 7-Day trial version. Both license types can be activated via TwinCAT XAE. For more information about TwinCAT 3 licensing, please consult the TwinCAT 3 Help System. The following document describes both licensing scenarios for a TwinCAT 3 function on TwinCAT 3 and is divided into the following sections:

- [Licensing a 7-Day trial version](#) [[▶ 11](#)]
- [Licensing a full version](#) [[▶ 12](#)]

Licensing a 7-Day trial version

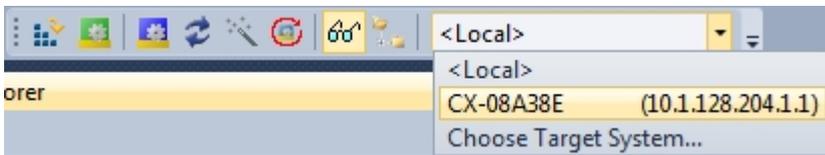
1. Start TwinCAT XAE
2. Open an existing TwinCAT 3 project or create a new project
3. In **Solution Explorer**, please navigate to the entry **System\License**



- Open the tab **Manage Licenses** and add a **Runtime License** for your product (in this screenshot **TE1300: TC3 Scope View Professional**)

Order No	License	Add Runtime License
TC1000	TC3 ADS	<input checked="" type="checkbox"/> cpu license
TC1100	TC3 IO	<input type="checkbox"/> cpu license
TC1200	TC3 PLC	<input type="checkbox"/> cpu license
TC1210	TC3 PLC / C++	<input type="checkbox"/> cpu license
TC1220	TC3 PLC / C++ / MatSim	<input type="checkbox"/> cpu license
TC1250	TC3 PLC / NC PTP 10	<input type="checkbox"/> cpu license
TC1260	TC3 PLC / NC PTP 10 / NC I	<input type="checkbox"/> cpu license
TC1270	TC3 PLC / NC PTP 10 / NC I / CNC	<input type="checkbox"/> cpu license
TC1300	TC3 C++	<input type="checkbox"/> cpu license
TC1320	TC3 C++ / MatSim	<input type="checkbox"/> cpu license
TE1300	TC3 Scope View Professional	<input checked="" type="checkbox"/> cpu license
TE1400	TC3 Target For Matlab Simulink	<input type="checkbox"/> cpu license

- Optional:** If you would like to add a license for a remote device, you first need to connect to the remote device via TwinCAT XAE toolbar



- Switch to the tab **Order Information** and click the button **Activate 7 Days Trial License...** to activate a test version

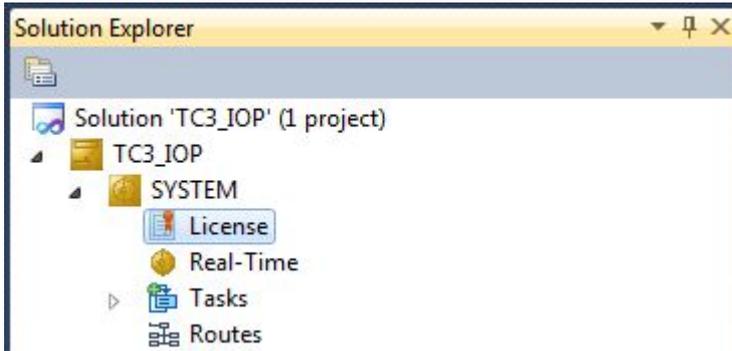
Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 29, 2012 (trial I...
TF6420	TC3 Database-Server	cpu license	expires on Mar 29, 2012 (trial I...

- Please restart TwinCAT 3 afterwards.

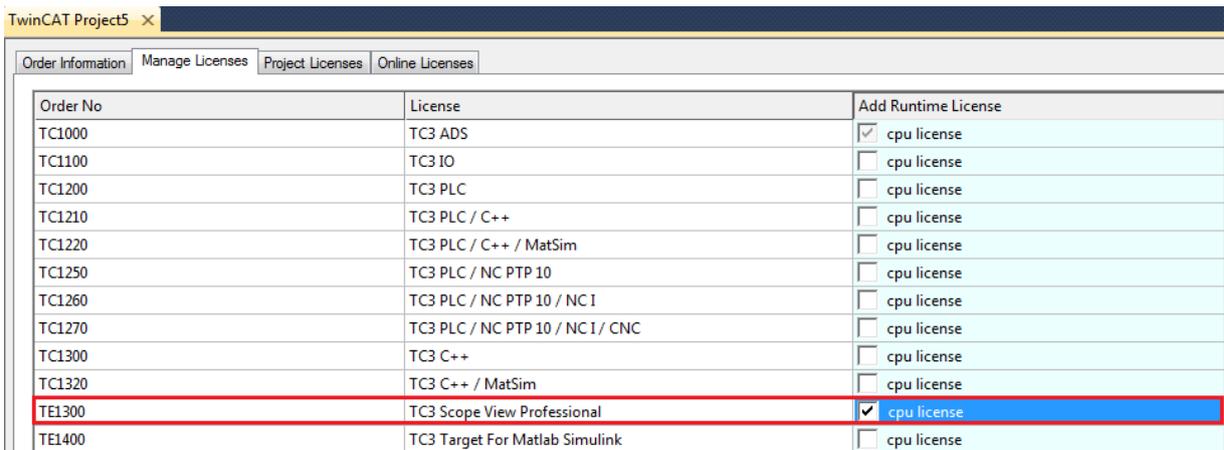
Licensing a full version

- Start TwinCAT XAE
- Open an existing TwinCAT 3 project or create a new project

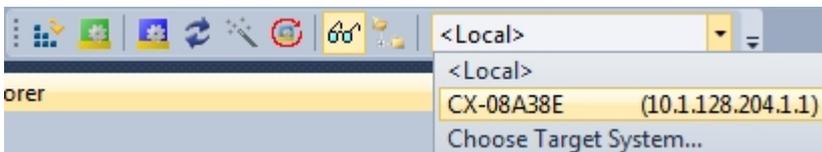
10. In **Solution Explorer**, please navigate to the entry **SYSTEMLicense**



11. Open the tab **Manage Licenses** and add a **Runtime License** for your product (in this screenshot **TE1300: TC3 Scope View Professional**).

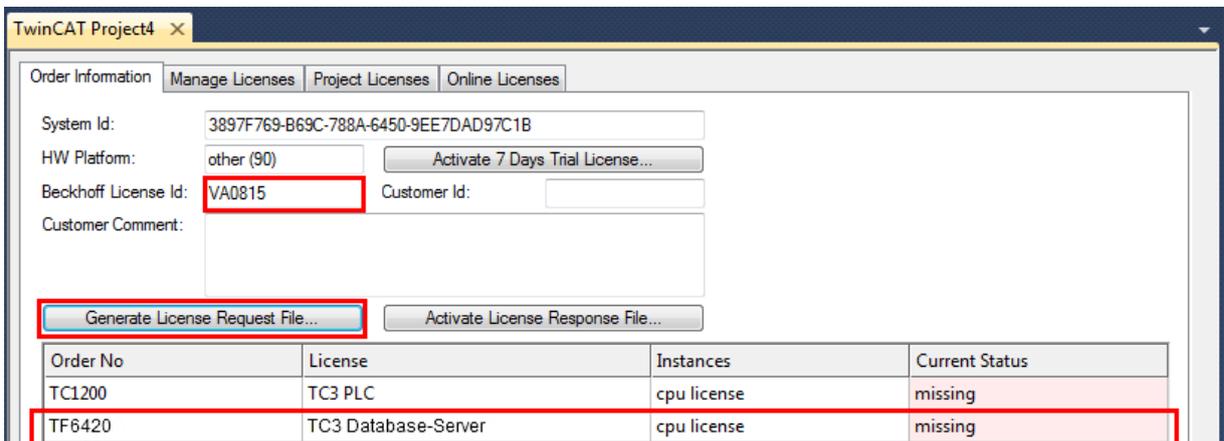


12. **Optional:** If you would like to add a license for a remote device, you first need to connect to the remote device via TwinCAT XAE toolbar

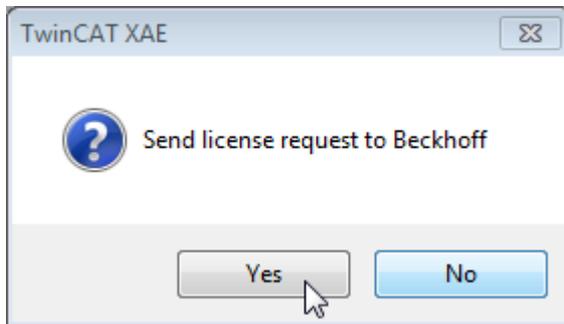


13. Navigate to the **Order Information** tab
 The fields **System-ID** and **HW Platform** cannot be changed and just describe the platform for the licensing process in general a TwinCAT 3 license is always bound to these two identifiers: the **System-ID** uniquely identifies your system. The **HW Platform** is an indicator for the performance of the device.

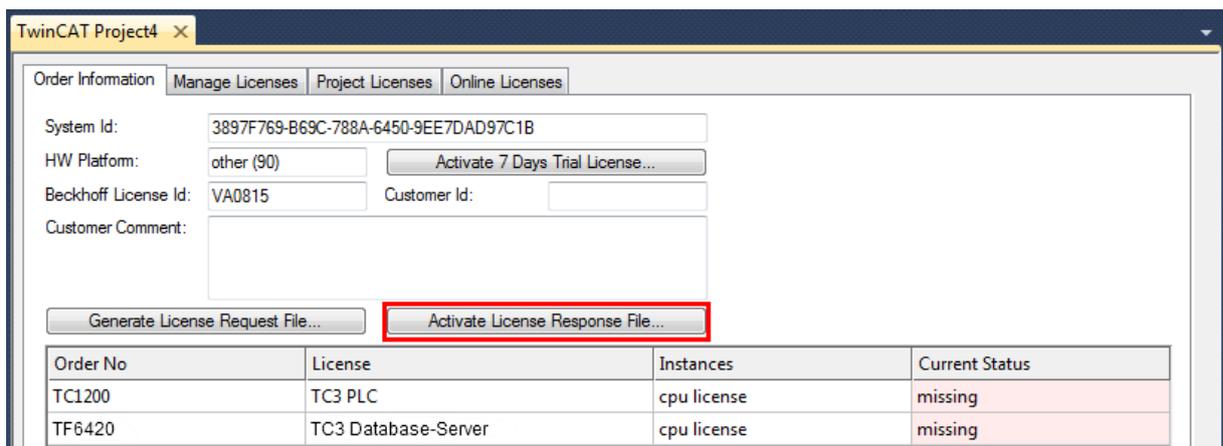
14. Optionally, you may also enter an own order number and description for your convenience



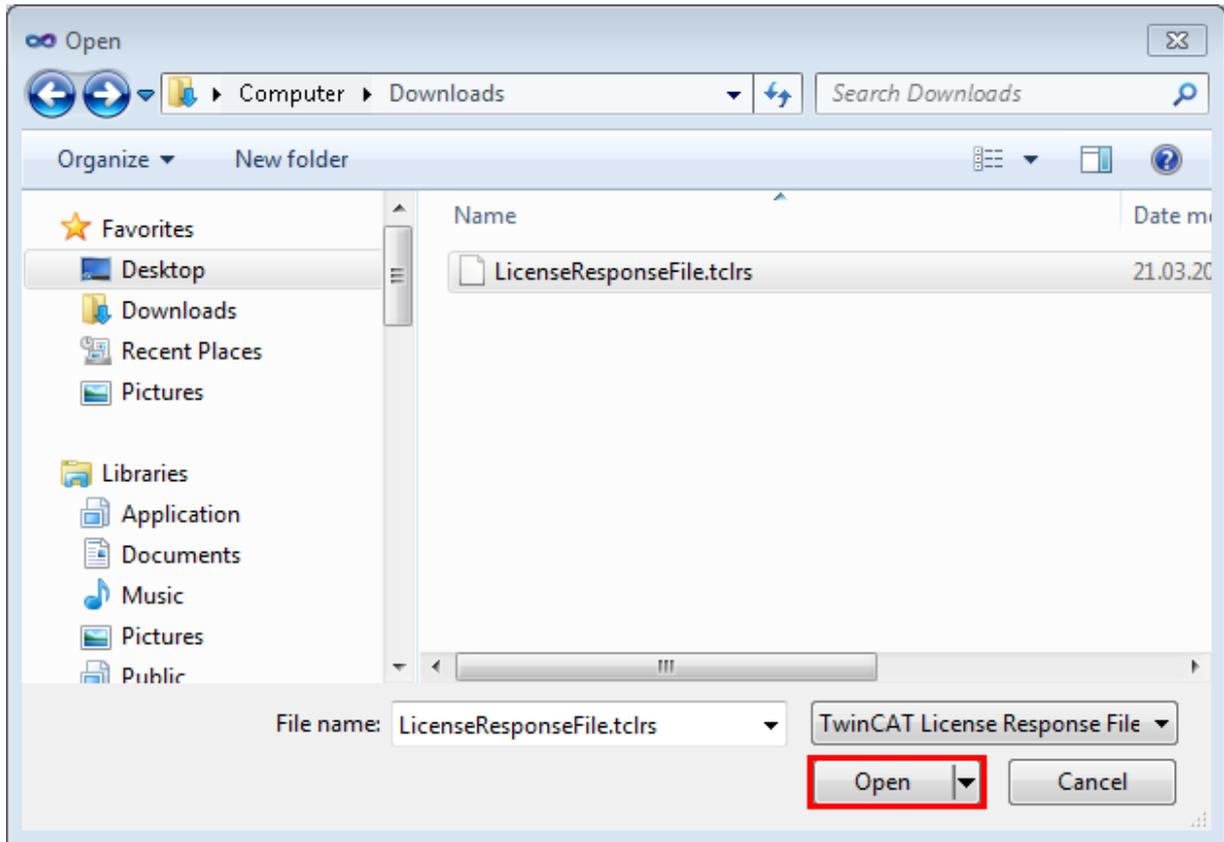
15. enter the **Beckhoff License ID** and click on **Generate License Request File...** If you are not aware of your **Beckhoff License ID** please contact your local sales representative.
16. After the license request file has been saved, the system asks whether to send this file via E-Mail to the Beckhoff Activation Server



17. After clicking **Yes**, the standard E-Mail client opens and creates a new E-Mail message to "tclicense@beckhoff.com" which contains the "License Request File"
18. Send this Activation Request to Beckhoff
 - NOTE! The License Response File will be sent to the same E-Mail address used for sending out the License Request File**
19. After receiving the activation file, please click on the button **Activate License Response File...** in the TwinCAT XAE license Interface.

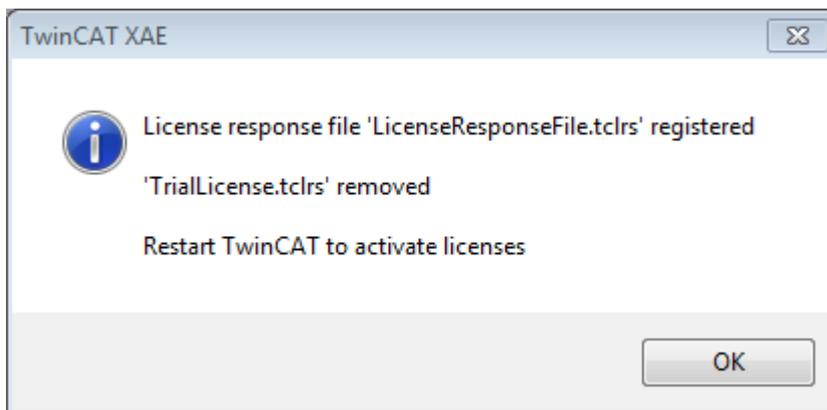


20. Select the received License response file and click on **Open**



21. The License Response File will be imported and all included licenses will be activated. If there have been any trial licenses, these will be removed accordingly.

22. Please restart TwinCAT to activate licenses.



NOTE! The license file will be automatically copied to...\\TwinCAT\\3.1\\Target\\License on the local device.