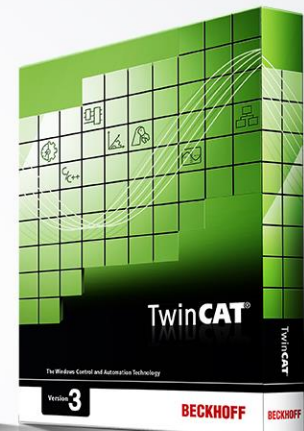
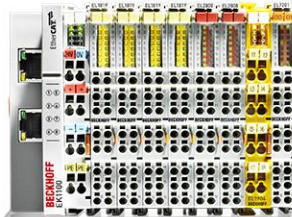


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TwinCAT 3

- Deliverables
- Naming
- Pricing
- Ordering
- Licensing
- Availability



Deliverables

TwinCAT 3 product categories

- TE – TwinCAT Engineering (XAE)
- TC - TwinCAT Runtime (XAR) - aka TwinCAT “Core”
- TF – TwinCAT Function



Categories TwinCAT 3 deliverables

- **TwinCAT3-XAE**
 - Full installation for engineering PC
 - TwinCAT XAE Shell or Integrate to Full Visual Studio
 - Integrated System Manager
 - PLC Editor (IEC 61131-3)
 - Safety PLC editor
 - C / C++ / MATLAB / SIMULINK modules*

- **TwinCAT3-XAR**
 - Run-time only components (execution engine)



**Note: full Visual Studio required for programming / debugging*

TwinCAT 3 XAE installation



▪ **TwinCAT 3 Integrated into VS**

- Extension for Microsoft Visual Studio* IDE
 - Adds TwinCAT template (similar to C++)
- System Manager
- Programming / debugging
 - PLC (IEC 61131-3)
 - Safety PLC Editor
 - C / C++ / MATLAB / SIMULINK
 - C# / .NET (non-real time)

▪ **TwinCAT 3 Standard**

- Installs XAE Shell (x64/32) IDE
- System Manager
- Programming /debugging
 - PLC (IEC 61131-3)
 - Safety PLC Editor
- TcCom execution (real time)
 - C/C++ / MATLAB / SIMULINK modules

**Visual Studio License purchased separately from Microsoft*

Most licenses allow for full unlimited testing during development

Special use case Engineering licenses operate under a Demo mode with limited functionalities

Types

- **Trial License (TCxxxx / TFxxxx)**
- **Demo License (TExxxx)**

- **Trial License (TCxxxx / TFxxxx)**
 - 7-Day trial can always be re-activated by customer
 - No internet required
 - Validity only checked at TwinCAT system start *
 - 30-day longevity test possible (keep system on)

**Exception TF2000 – TwinCAT HMI Server*



- **Demo License (TExxxx)**
 - Primarily used for specialized functionalities
 - Limited functionalities during Demo period
 - CAM Designer (no ability to save)
 - MATLAB/SIMULINK – Limited to 5 inputs/outputs

Small selection of TE products have no Demo mode – Ask sales/support



Naming

TwinCAT 3 XAE (Engineering)



- Product: TE 1000-0000
- Content:
 - Full-Featured Base Package
 - XAE Shell - IDE
 - System manager
 - PLC-Editor
 - Safety Editor (TwinSAFE)
- Price:
 - Royalty-free
 - 7 day time-limited trial runtime
 - Infiniteable renewable

Note: Select specialized engineering tools are purchased seperately

TwinCAT XAR (Run-time)

Kit licenses

Inherits lower levels licenses

TwinCAT *CORE* license

TC12xx - PLC (IEC 61131-3) + options

TC13xx - C++ base + options

TC1270 | TC3 PLC/NC PTP 10/NC I/CNC

TC1260 | TC3 PLC/NC PTP 10/NC I

TC1250 | TC3 PLC/NC PTP 10

TC1220 | TC3 PLC/C++/Matlab®/Simulink®

TC1210 | TC3 PLC/C++

TC1200 | TC3 PLC

TC1100 | TC3 I/O

TC1000 | TC3 ADS

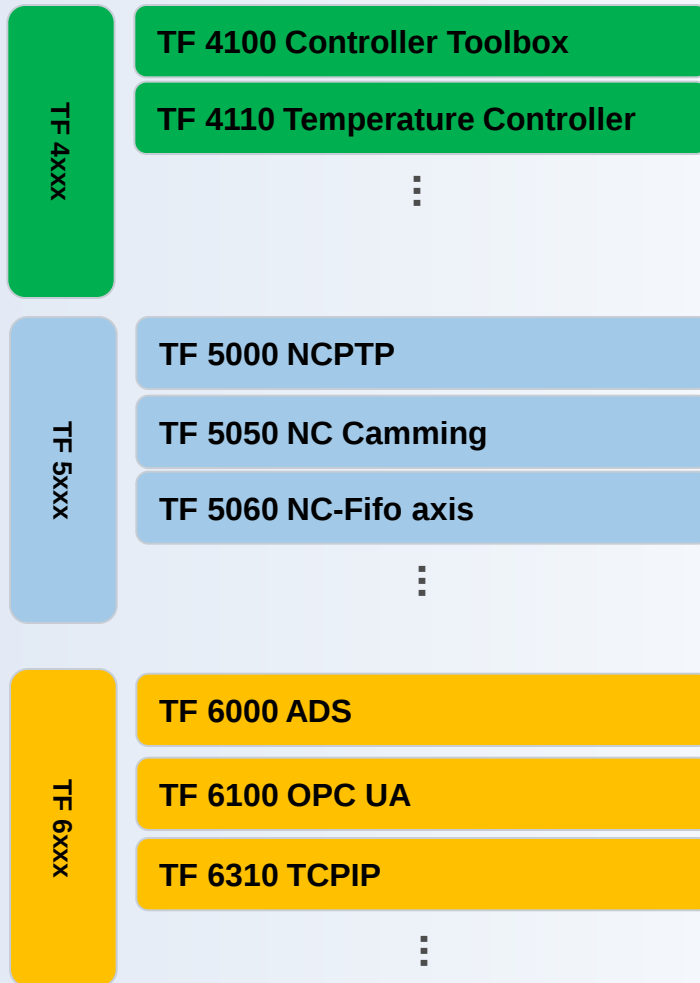
TC1320 | TC3 C++/Matlab®/Simulink®

TC1300 | TC3 C++

TC1100 | TC3 I/O

TC1000 | TC3 ADS

Functions



- **TwinCAT3 Functions**
Functional extension of
 - TC3-XAE (engineering)
 - TC3-XAR (run-time)
- **Categories (derived from IO terminals)**
 - EL**1**xxx System
 - EL**3**xxx Measurement
 - EL**4**xxx Control
 - EL**5**xxx Motion
 - EL**6**xxx Connectivity
- **Sample:**
 - TF-**1**100-0xxx Controller Redundancy
 - TF-**3**600-0xxx Condition Monitoring
 - TF-**4**100-0xxx Controller Toolbox
 - TF-**5**000-0xxx NC-PTP10
 - TF-**5**200-0xxx CNC
 - TF-**6**100-0xxx OPC UA

Naming - Scheme

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General scheme of naming

TX abbb-cdpp-vvvv

T TwinCAT (or S – Software)
X Base System
C - Core (Base runtime)
F - Function
E - Engineering

a Class
(1 - System | 2 - HMI | 3 - Measurement | 4 - Control | 5 - Motion | 6 - Connectivity)

bbb Product ID

-

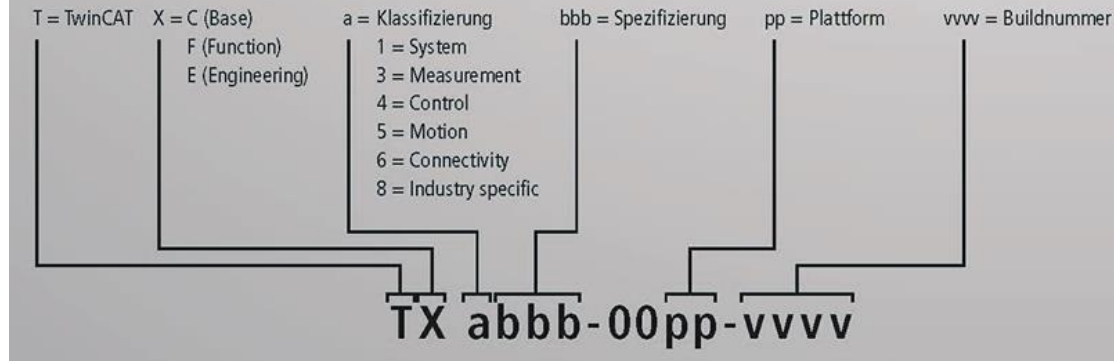
c Reserved

d Delivery (0 - Target System | 1 - Dongle | 2 - Floating (no hardware association yet)
- this is an instruction code specifically for the factory

pp Performance Class (BPI – Beckhoff Performance Index – “Horse Power of PC”)

-

vvvv Build number
order specific “historical” product version of TwinCAT / Function



Pricing

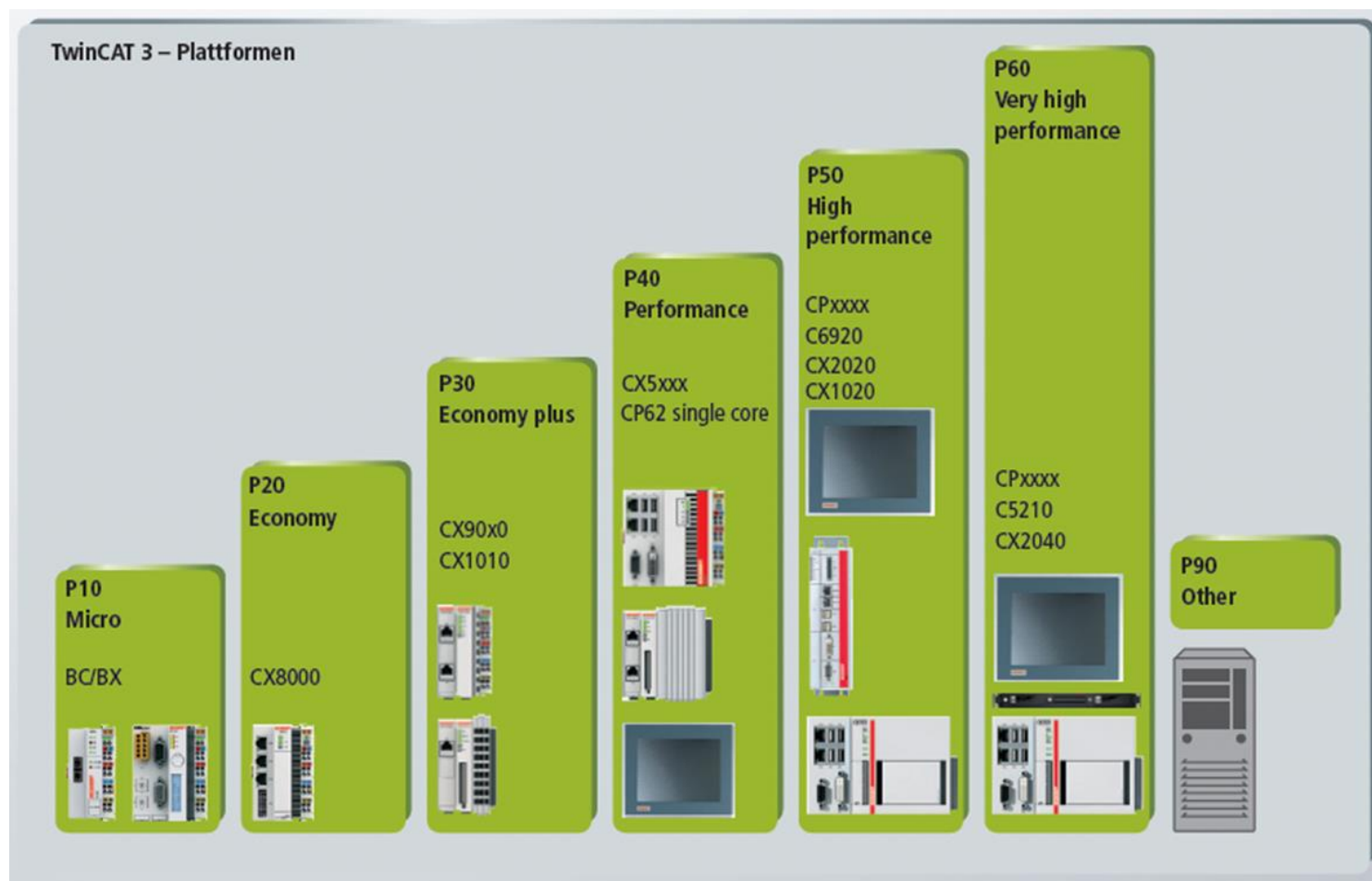
Pricing – Performance Levels (PL)

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TwinCAT3 module pricing depends on the performance of the PC platform

Categories of platforms:

Mix of O/S and CPU - Roughly describes the capabilities of the system



Price according to product and platform

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Pricelist is a simple matrix “Product name / Performance Level”

→ Price depends on performance level (PL)

Example – TC1200 - PLC only system

CX8200 is PL20 (Economy) → TC1200-0020 (\$\$)

CX5340 is PL50 (Performance Plus) → TC1200-0050 (\$\$\$)

		economy plus	performance	performance plus	mid performance	high performance	very high performance
		30	40	50	60	70	80
TwinCAT-Base							
TC1000-00xx	TC3 ADS	\$0	\$0	\$0	\$0	\$0	\$0
TC1100-00xx	TC3 IO	\$0					
TC1200-00xx	TC3 PLC						\$\$\$
TC1250-00xx	TC3 PLC/NC PTP 10 axes						

Offers Simple and Cost-conscious pricing

Lower performance hardware uses the same licenses but with larger discounts

- PCs are not arbitrarily limited to certain functions
- New functionalities can be added as needed
- Economy processors are more limited in their available processing power
 - The TwinCAT performance class reflects this with steeper discounts
- Enables greater \$/performance advantages for cost conscious machines

Licensing

TwinCAT licenses are perpetual → one time purchase

TwinCAT is **NOT** offered as SaaS (we keep our sass to a minimum)

Licenses are recoverable (tied to system ID or Dongle ID)

Exception - Analytics Workbench (TE3500 / TE3520) does have a yearly update fee

- % of original purchase price
- Only needed to get new features!

TCxxx / TFxxx – Runtime Licenses

- Purchased per deployment system
- Stored to IPC/ePC Hard disk or Dongle
- TExxxx – Engineering licenses
 - Purchased per seat – never expire
 - Stored to USB dongle
 - Can be easily shared between colleagues

Licensing – Handling: where to find

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- License handling inside System Manager area

The screenshot shows the TwinCAT System Manager interface. On the left, the 'Solution Explorer' pane displays a tree view of the project structure. The 'SYSTEM' folder is expanded, and the 'License' sub-item is highlighted with a red rectangle. A red arrow points from this 'License' item to the 'Manage Licenses' tab in the main window. The 'Manage Licenses' tab is active, showing various license management options and a table of installed licenses.

System Information:

- System Id: BE9C5CAE-2898-0070-183D-C8F9CCE2215C
- HW Platform: other (90)
- Beckhoff License Id:
- Customer Id:
- Customer Comment:

Buttons:

- Generate License Request File...
- Activate License Request...

License Table:

Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 1, 2025
TC1300	TC3 C++	cpu license	expires on Mar 1, 2025

Licensing – Trial Generation

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Trial license

- generate a “7 Days Trial License” anytime for use
- Engineering PC does not need run-time license – trial is fine

The screenshot shows the 'Manage Licenses' tab in the Beckhoff licensing software. The 'System Id' is BE9C5CAE-2898-0070-183D-C8E9CCE2215C and the 'HW Platform' is 'other (90)'. A red box highlights the 'Activate 7 Days Trial License...' button. A red arrow points from this button to the 'Enter Security Code' dialog box. The dialog box has a text input field containing 'Qrm2X' and a red box around the 'OK' button. Another red arrow points from the 'Qrm2X' input field to the 'OK' button. Below the dialog box, a table lists licenses for various products.

Order No	Product	License Type	Status
TC1200	TC3 C++	cpu license	expires on Mar 1, 2012 (trial license)
TE1510	TC3 Cam-Design-Tool	cpu license	missing
TF6100	TC3 OPC-UA	cpu license	missing

Entering valid security code will enable “OK”

Development and Testing is complete.

How to get commercial license ?

Options

1. Order pre-installed License(s) on Target System (installed to PC's SSD)
No further action required
2. Order pre-installed License(s) on Dongle
Configure TwinCAT to look for dongle

or

3. Order floating Licenses (no affiliation to hardware – yet)
Customer will marry licenses to HW System ID (PC or Dongle)

Since this is the most common way, let's look at this in more detail

SystemID / unique for each IPC

Floating Licenses

- Most common way to order licenses
- Can be deployed to any PC with matching or lower Performance class
 - Can also be deployed to dongles
- Have no hardware affiliation until after they are used the first time
- Can be retrieved at any time from automated license server by re-submitting request

1. Customer orders “TC1200-0250 - TC3 PLC (PL50)” from BACA
 - Beckhoff processes order (Typically 1 business day)
2. Beckhoff emails Customer certificate “TwinCAT3 License ID”
 - ~Commercial part is done
 - Ordered products available on automated license server- to be requested
 - Technical part ready to be started
3. Customer generates license request file
4. Customer sends License Req File from PC/Dongle and “License ID / TAN” to tclicense@beckhoff.com
5. Automated email server responds with License Response File
 - Typically 1-2 min

Licensing – “Software license document”

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License ID: Represents all licenses
TAN: Individual TAN code per line item

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Page 1 of 2

Software license document

License ID00450004

Delivery address
OEM Automation Inc.
C/O Mr. Max Roboto
Highspeed Road 200
47110 Cycletown
GREENLAND

Customer
OEM Automation Inc.
Highspeed Road 200
47110 Cycletown
GREENLAND

Customer96100450
Order00450004
Date2019-02-01
Your order 1CC01101
Your order 2

Line	Software	System ID	Registration key	TAN
10.1	TF6250-0030 137752	BC25B7C6-BB0B- 9A4C-33C1- D92BD820C93C		8H24K-ZJHQN
20.1	TC1200-0030 137668	BC25B7C6-BB0B- 9A4C-33C1- D92BD820C93C		4BH4K-01BNY

- SystemID unique for each IPC
- TwinCAT generates SystemID on it's own (Beckhoff PC and third party)
- TwinCAT generates HW Platform number

Order Information | Manage Licenses | Project Licenses | Online Licenses

System Id: BE9C5CAE-2898-0070-183D-C8F9CCE2215C

HW Platform: other (90) [Activate 7 Days Trial License...](#)

Beckhoff License Id: Customer Id:

Customer Comment:

[Generate License Request File...](#) [Activate License Response File...](#)

Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 1, 2012 (trial license)
TC1300	TC3 C++	cpu license	expires on Mar 1, 2012 (trial license)

- Select additional components to be registered

Order Information			Manage Licenses	Project Licenses	Online Licenses
Order No	License	Add Local			
TF6621	EtherCAT Redundancy unlimited	☐	cpu license		
TE1400	TC3 TargetForMatlabSimulink	☐	cpu license		
TF6000	TC3 ADS-Communication-Library	☐	cpu license		
TF6100	TC3 OPC-UA	☒	cpu license		
TF6120	TC3 OPC-DA	☐	cpu license		
TF6220	TC3 EtherCAT-Redundancy250	☐	cpu license		
TF6221	TC3 EtherCAT-Redundancy250+	☐	cpu license		
TF6250	TC3 Modbus-TCP	☐	cpu license		
TF6255	TC3 Modbus-RTU	☐	cpu license		
TF6270	TC3 Profinet-IO-Device	☐	cpu license		
TF6300	TC3 FTP	☐	cpu license		

- Overview of licenses in this project

Order Information Manage Licenses Project Licenses Online Licenses				
Order No	License	Instances	Platform Type	In Use By
TC1000	TC3 ADS	cpu license	Runtime	SYSTEM
TC1200	TC3 PLC	cpu license	Runtime	PLC
TC1300	TC3 C++	cpu license	Runtime	Untitled1_Obj1 (CModule1)
TF6100	TC3 OPC-UA	cpu license	Runtime	License
TE1510	TC3 Cam-Design-Tool	cpu license	Engineering	License

TwinCAT3:

- Overview on licenses and their expiration

Order Information	Manage Licenses	Project Licenses	Online Licenses
Order No	License	Instances	Status
TC1000	TC3 ADS	cpu license	expires on Jan 28, 2012
TC1100	TC3 IO	cpu license	expires on Jan 28, 2012
TC1200	TC3 PLC	cpu license	expires on Jan 28, 2012
TC1300	TC3 C++	cpu license	expires on Jan 28, 2012

TwinCAT3:

- Generate License Request file

The screenshot shows the 'Order Information' tab of the TwinCAT3 licensing software. A red arrow points to the 'System Id' field, which contains the value 'BE9C5CAE-2898-0070-1825-22215C'. A red box highlights the 'Beckhoff License Id' field. A green box highlights the 'Customer Id' and 'Customer Comment' fields. Below the form are two buttons: 'Generate License Request File...' and 'Activate License Response File...'. At the bottom is a table showing license information.

Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 1, 2012 (trial license)
TC1300	TC3 C++	cpu license	expires on Mar 1, 2012 (trial license)
TE1510	TC3 Cam-Design-Tool	cpu license	missing
TF6100	TC3 OPC-UA	cpu license	missing

Mandatory (red)
**Beckhoff
License ID**
to find order in
database pool

Optional (green)
**Customer
information**
Will be included
into License
Response File

TwinCAT3:

- Generate License Request file

Order Information | **Manage Licenses** | Project Licenses | Online Licenses

Required

System Id.:

HW Platform:

Beckhoff License Id.: Customer Id.:

Customer Comment:

1

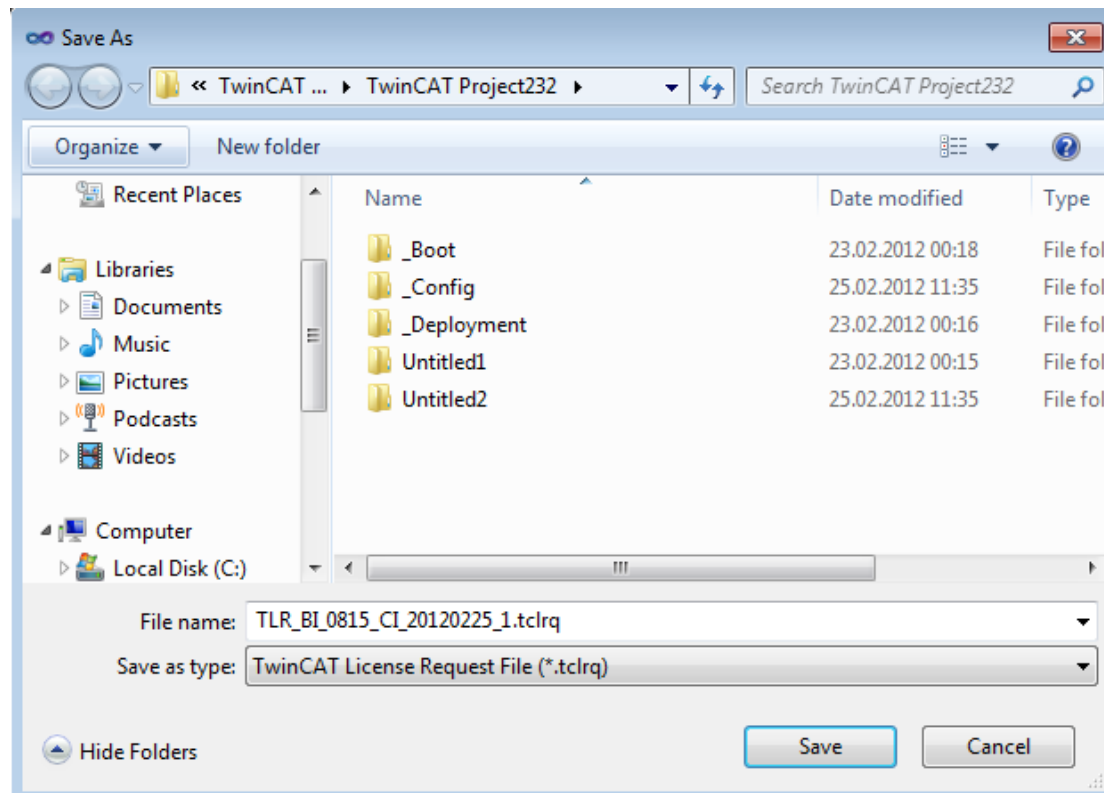
Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 1, 2012 (trial license)
TC1300	TC3 C++	cpu license	expires on Mar 1, 2012 (trial license)
TE1510	TC3 Cam-Design-Tool	cpu license	missing
TF6100	TC3 OPC-UA	cpu license	missing

1. Step:

Generate
License Req File

TwinCAT3:

- Step 2: Save “License Request file”
Can be copied to USB stick and send later to license server



TwinCAT3:

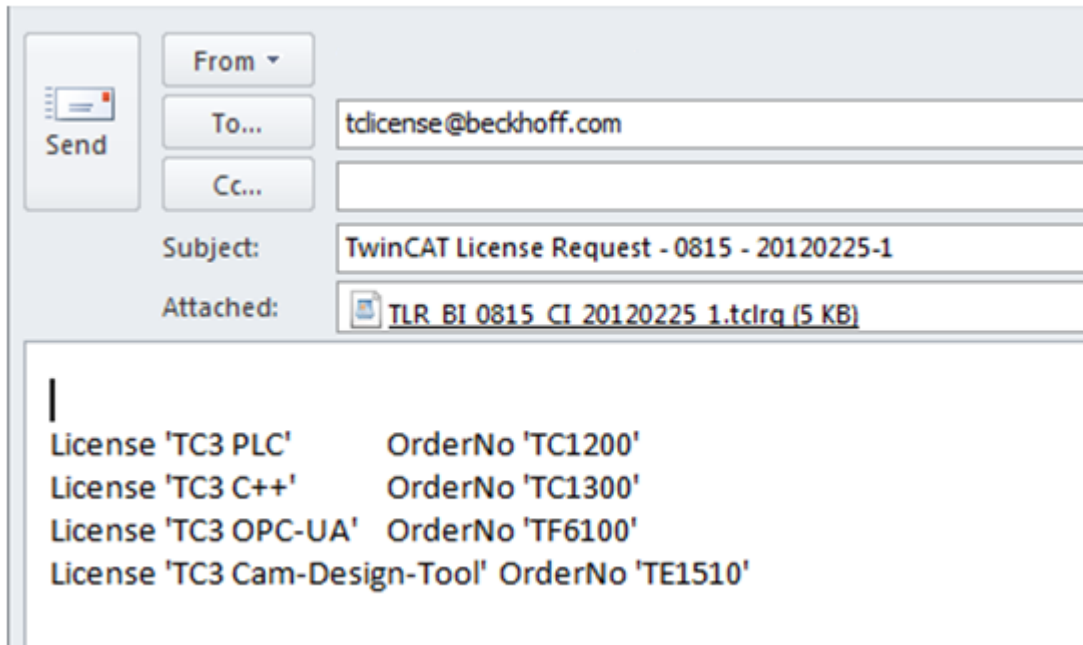
- Step 2a Optional : Send License Request file to Beckhoff

The screenshot displays the TwinCAT3 licensing management window. At the top, there are four tabs: "Order Information", "Manage Licenses", "Project Licenses", and "Online Licenses". The "Order Information" tab is active, showing fields for "System Id" (BE9C5CAE-2898-0070-183D-C8F9CCE2215C), "HW Platform" (other (90)), "Beckhoff License Id" (0815), "Customer Id" (20120225-1), and "Customer Comment" (My project no 17992). A button labeled "Activate 7 Days Trial License..." is visible. Below these fields, a "Generate License File..." button is present. A modal dialog box titled "TwinCAT XAE" is overlaid on the main window, featuring a question mark icon and the text "Send license request to Beckhoff". The dialog has "Yes" and "No" buttons at the bottom. In the background, a table lists order details:

Order No	Li	atus
TC1200	To	Mar 4, 2012 (trial license)
TC1300	To	Mar 4, 2012 (trial license)
TE1510	To	Mar 4, 2012 (trial license)
TF6100	To	Mar 4, 2012 (trial license)

TwinCAT3:

- Step 2a (Optional) : Send License Request file to tdlicense@beckhoff.com
 - Email contains license request file with all required information – additionally the products are listed in email body



Send

From ▾

To...

Cc...

Subject:

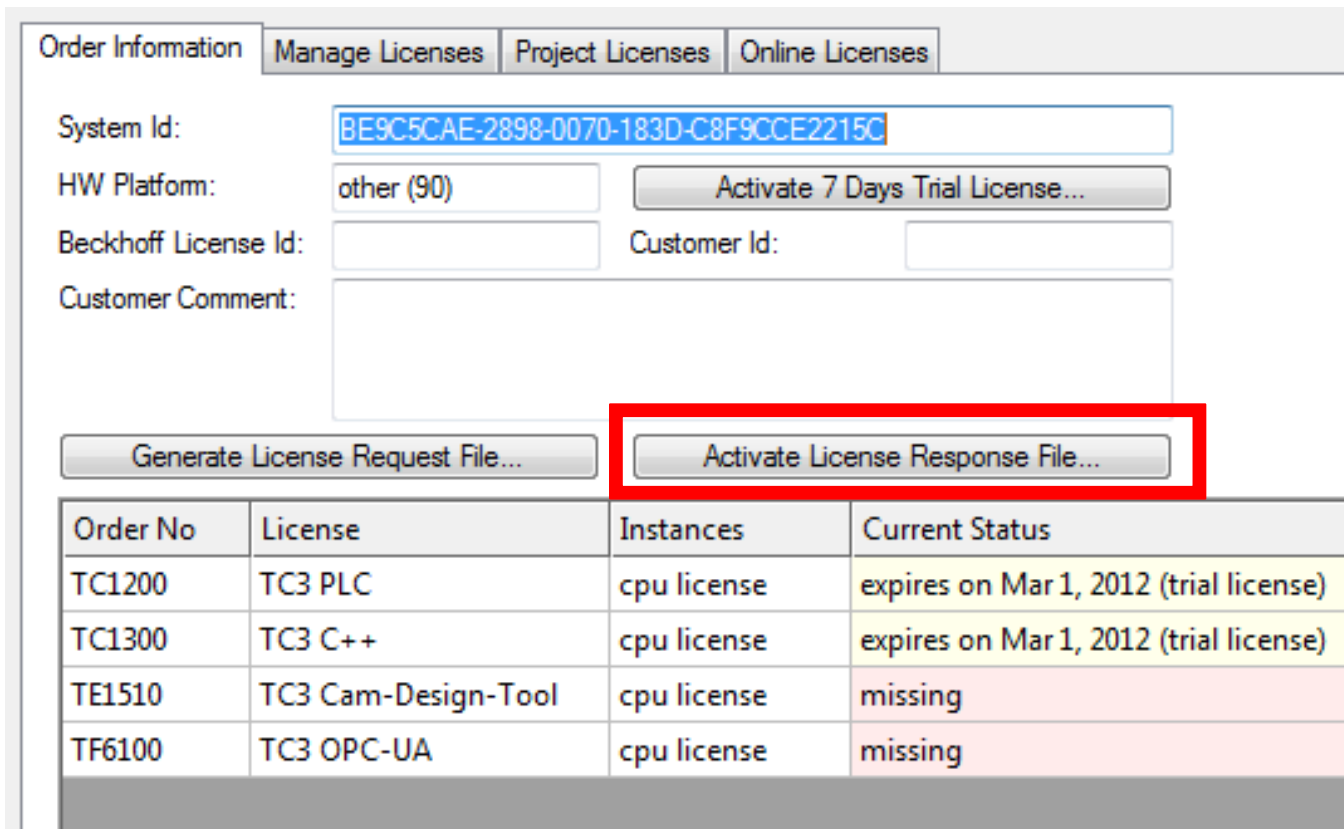
Attached: 

|

License 'TC3 PLC'	OrderNo 'TC1200'
License 'TC3 C++'	OrderNo 'TC1300'
License 'TC3 OPC-UA'	OrderNo 'TF6100'
License 'TC3 Cam-Design-Tool'	OrderNo 'TE1510'

TwinCAT3:

- Step 3: Activate License Response file



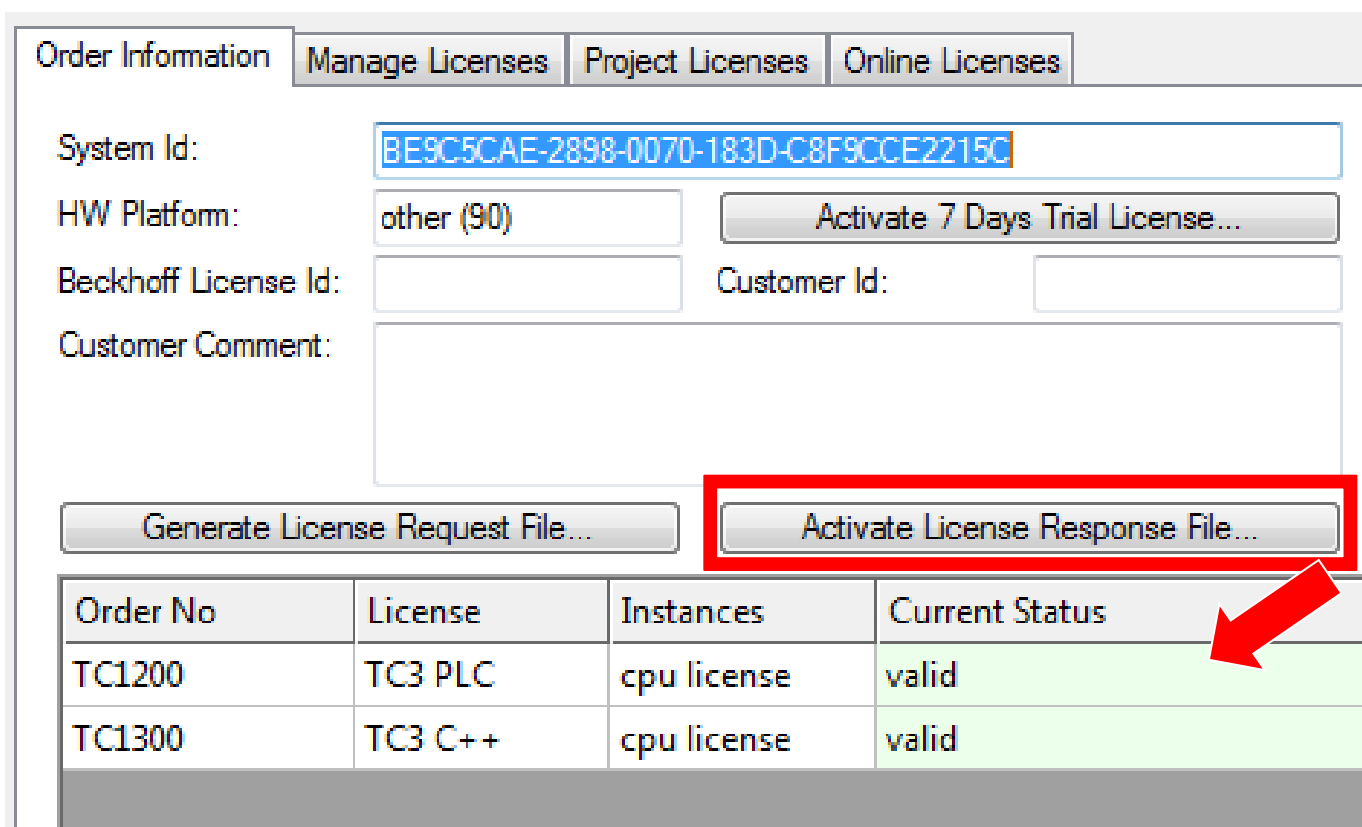
The screenshot shows the TwinCAT3 licensing interface. At the top, there are four tabs: 'Order Information', 'Manage Licenses', 'Project Licenses', and 'Online Licenses'. Below the tabs, there are several input fields: 'System Id' (containing 'BE9C5CAE-2898-0070-183D-C8F9CCE2215C'), 'HW Platform' (set to 'other (90)'), 'Beckhoff License Id', 'Customer Id', and 'Customer Comment'. There are two buttons: 'Generate License Request File...' and 'Activate License Response File...'. The 'Activate License Response File...' button is highlighted with a red rectangular box. Below the buttons is a table with four columns: 'Order No', 'License', 'Instances', and 'Current Status'.

Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	expires on Mar 1, 2012 (trial license)
TC1300	TC3 C++	cpu license	expires on Mar 1, 2012 (trial license)
TE1510	TC3 Cam-Design-Tool	cpu license	missing
TF6100	TC3 OPC-UA	cpu license	missing

Activate
License Response
File...

TwinCAT3:

- Step 3: Activate License Response file



The screenshot shows the TwinCAT3 licensing interface. At the top, there are four tabs: 'Order Information', 'Manage Licenses', 'Project Licenses', and 'Online Licenses'. Below the tabs, there are several input fields: 'System Id' (containing 'BE9C5CAE-2898-0070-183D-C8F9CCE2215C'), 'HW Platform' (set to 'other (90)'), 'Beckhoff License Id', 'Customer Id', and 'Customer Comment'. Below these fields are two buttons: 'Generate License Request File...' and 'Activate License Response File...'. The 'Activate License Response File...' button is highlighted with a red box. Below the buttons is a table with four columns: 'Order No', 'License', 'Instances', and 'Current Status'. The table contains two rows of data, both with a 'valid' status. A red arrow points from the 'Activate License Response File...' button to the 'valid' status in the first row of the table.

Order No	License	Instances	Current Status
TC1200	TC3 PLC	cpu license	valid
TC1300	TC3 C++	cpu license	valid

Activate
License Response
File...

...results in valid
licenses

Tip:

Keep license Request and Response files and save them with the project
You may be asked for these later during a support call

License server will automatically amalgamate license requests

License Server will return a single license response file for one System ID (Dongle or PC)

Multiple license files can be activated (not only one file):

Situation Example

- Machine builder order “TC1200-00xx TC3 PLC”
 - send license request file to license server
 - activate license response file

Machine is delivered to End user

- End user adds connectivity
“TC6100 TC3 OPC-UA” for MES/ERP connectivity
 - send license request file for “TC6100 TC3 OPC-UA”
 - activate license response file

TwinCAT3: Licensing

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Licensing for target devices can be done easily remotely

Remote licenses

Local licenses

Connection to remote device will automatic add license dialog for remote device

The screenshot shows the TwinCAT3 software interface. The top toolbar includes buttons for 'Debug', 'TwinCAT (x86)', and a license key 'CX-0E1E60'. Below the toolbar, the 'Order Information (Target)' tab is selected and highlighted with a red box. The 'Order Information (Local)' tab is also visible. The 'System Id' field displays 'A4C8E694-4974-41BA-3AFC-38FA7663C07C'. The 'HW Platform' field displays 'other (90)'. A 'Generate 7 Days Trial License...' button is located at the bottom right.

Order Information (Target) Order Information (Local) Manage Licenses Project Licenses Online

System Id: A4C8E694-4974-41BA-3AFC-38FA7663C07C

HW Platform: other (90)

Generate 7 Days Trial License...

License Status of remote devices

About TwinCAT System

TwinCAT System Service v3.0.0.1302

 **TwinCAT** v3.0.3073

Copyright BECKHOFF Automation © 1996-2012

Logon User: System Id:
 HW Platform:

Licenses:

Order No	License	Instances	Status
TC1000	TC3 ADS	cpu license	valid
TC1100	TC3 IO	cpu license	valid
TC1200	TC3 PLC	cpu license	expires on Jan 29, 2012
TC1300	TC3 C++	cpu license	valid

About TwinCAT...

- TwinCAT XAE (TcXaeShell)
- TwinCAT XAE (TcXaeShell64)
- Tools
- Realtime Settings...
- Router
- Start/Restart
- Config

OK

10/23/2024

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