BECKHOFF New Automation Technology

Manual | EN

TF1810

TwinCAT 3 | PLC HMI Web
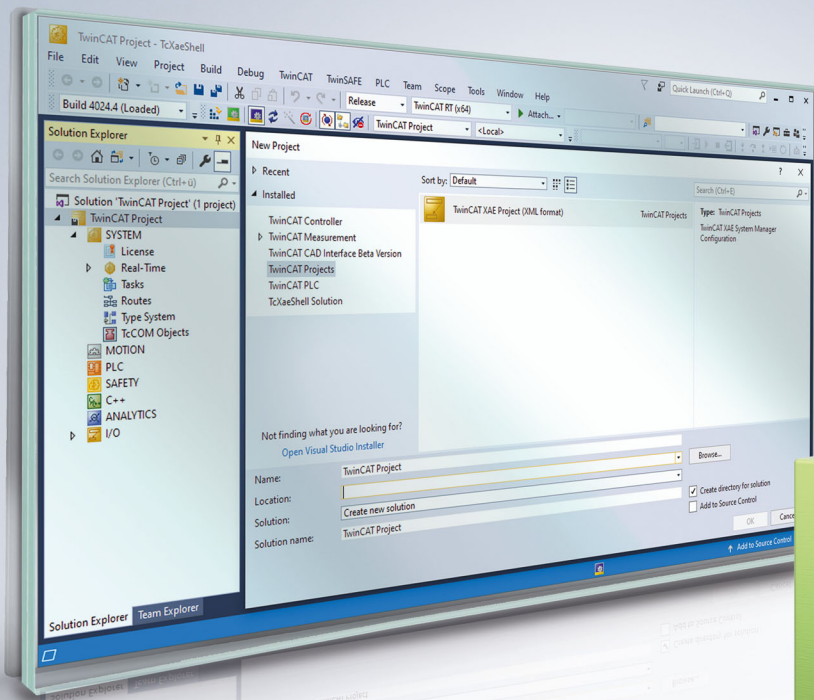
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Version: 1.4.1

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.
For installation and commissioning of the components, it is absolutely necessary to observe the documentation and the following notes and explanations.
The qualified personnel is obliged to always use the currently valid documentation.

The responsible staff must ensure that the application or use of the products described satisfies all 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 notice.
No claims to modify 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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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

ℹ 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 PLC HMI Web

PLC HMI Web enables the visualization to be displayed in any web browser. It is realized as a Java script, which queries the display information from the web server. Only changes in the display are transferred cyclically. When a visualization project is downloaded, all files required for the PLC HMI Web up to <TC3.1.4026.0 are transferred to directory *C:\TwinCAT\3.1\Boot\Plc\Port_851\Visu* and from >=TC3.1.4026.0 to the directory *C:\ProgramData\Beckhoff\TwinCAT\3.1\Boot Plc\Port_851\Visu*. This includes the Java script, the basic HTML page (HTM file) for the visualization, and all images required in the visualization.

> **i** PLC HMI Web can currently only be configured for PLC projects that can be reached via port 851.

The following topics are described below:

Requirements

- On the server side the web server must be configured accordingly.
- On the client side, as a minimum Microsoft Internet Explorer 10 or the latest version of Mozilla Firefox, Google Chrome or Safari must be available.

> **i** **Data security violations**
>
> In order to minimize the risk of data security violations, the following organizational and technical measures are recommended for the system, on which your applications run:
>
> - Exposure of the PLC and the control network to open networks and the Internet should be avoided, as far as possible.
> - Use additional data link layers such as a VPN for remote access and install firewall mechanisms for protection.
> - Restrict access to authorized persons, change any default passwords during first commissioning and then at regular intervals.

Commissioning the PLC HMI Web

Step 1: Configure Internet Information Services (IIS)

The PLC HMI Web uses the Microsoft IIS as web server. The IIS has to be configured accordingly. The configuration is handled by the TF1810 | TC3 PLC HMI Web installation, which is available for download from the Beckhoff website.

Step 2: Enable PLC HMI Web

The "WebVisualization" object ( ) enables the PLC HMI Web. You add it to the "Visualization Manager" object in the PLC project tree via the context menu command **Add > WebVisualization** (see also PLC documentation: Creating a visualization > Visualization object).

With the WebVisualization object a visualization task "VISU_TASK" is created in the Solution and a reference to this task in the project. The reference is used to call the visualization code. Therefore, you have to reactivate the configuration after adding the object.

> **i** **Deleting a WebVisualization object**
>
> If you delete a WebVisualization object and have not added an additional TargetVisualization object, you have to delete the task "VISU_TASK" under **System > Tasks** in the TwinCAT project tree. This task is not required in the integrated visualization. (See also TF1800: Editor of the TargetVisualization object and PLC: Integrated visualization)

Step 3: Call PLC HMI Web

In order to call the start page of the visualization, enter the following address in the web browser: https://device_name/Tc3PlcHmiWeb/Port_851/Visu/webvisu.htm

Example: https://localhost/Tc3PlcHmiWeb/Port_851/Visu/webvisu.htm

"webvisu" is the HTML start page of the visualization defined in the PLC HMI Web settings. After the call this is used to display the start visualization, which is also defined in the manager, in the browser. The visualization can then be operated in the browser.

Optionally you can give the PLC HMI Web a name on calling it in order to be able to address it specifically in the application later on. To do this, enter the parameter ClientName=<Name> after the URL.

Example: https://localhost/Tc3PlcHmiWeb/Port_851/Visu/webvisu.htm?Clientname=V_ClientXY

Editor of the WebVisualization object

The "WebVisualization" object (![icon]), which you can add in the PLC project tree below the "Visualization Manager" object, enables the PLC HMI Web and contains the settings for the web visualization. Double-click on the object in order to edit the settings in an editor window.
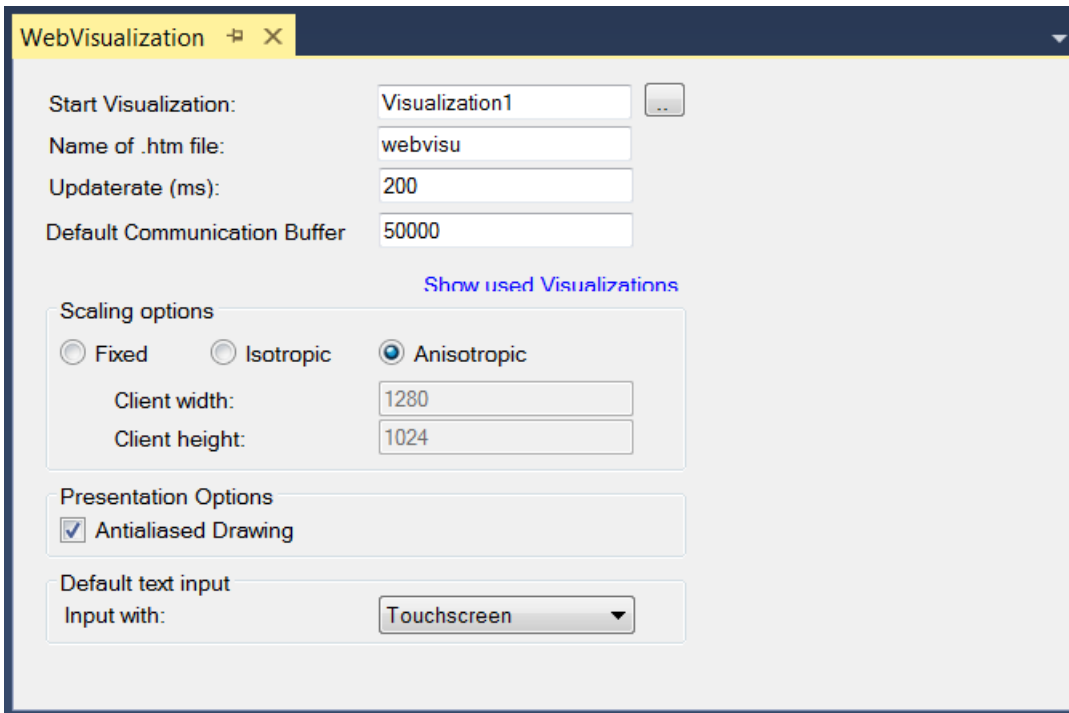
Start Visualization	Name of the visualization to be displayed automatically when the PLC HMI Web is started. "Visualization" is to be entered here as standard. The input assistant can be used to select a different visualization.
Name of .htm file	Name of the basic HMTL page of the visualization, which must also be entered as the address in the web browser. Example: https://localhost/Tc3PlcHmiWeb/Port_851/Visu/webvisu.htm
Updaterate (ms)	Update rate in milliseconds, with which the data in the web browser are updated.
Default Communication Buffer	Size of the communication buffer in bytes. Specifies the maximum available memory for the data transfer between web client and web browser.
Show used Visualizations	Button for opening the standard dialog of the Visualization Manager: Here you can select the visualizations that are to be used for the PLC HMI Web. (See also PLC documentation: Creating a visualization > Visualization Manager > Visualizations)

Scaling options

Fixed	The size of the visualization is retained, irrespective of the size of the browser window.
Isotropic	The size of the visualization depends on the size of the browser window. The visualization retains its proportions, however.
Anisotropic	The size of the visualization depends on the size of the browser window. The visualization does not retain its proportions.
Client size	The display size of PLC HMI Web is defined through the following settings: • Client height: height in pixels • Client width: width in pixels

Presentation options

Antialiased Drawing	Activate this option, if antialiasing is to be used when the visualizations are drawn in the visualization editor window of the programming system. (Offline or online)

Default text input

This setting is only then active if the input type "Standard" is selected in the input configuration of the visualization element. In this case, the default text entries defined in the Visualization Manager are used.

Touchscreen	Select this option if the web clients are operated with a touchscreen by default.
Keyboard	Select this option if the web clients are operated with a keyboard by default.

More Information:
www.beckhoff.com/tf1810