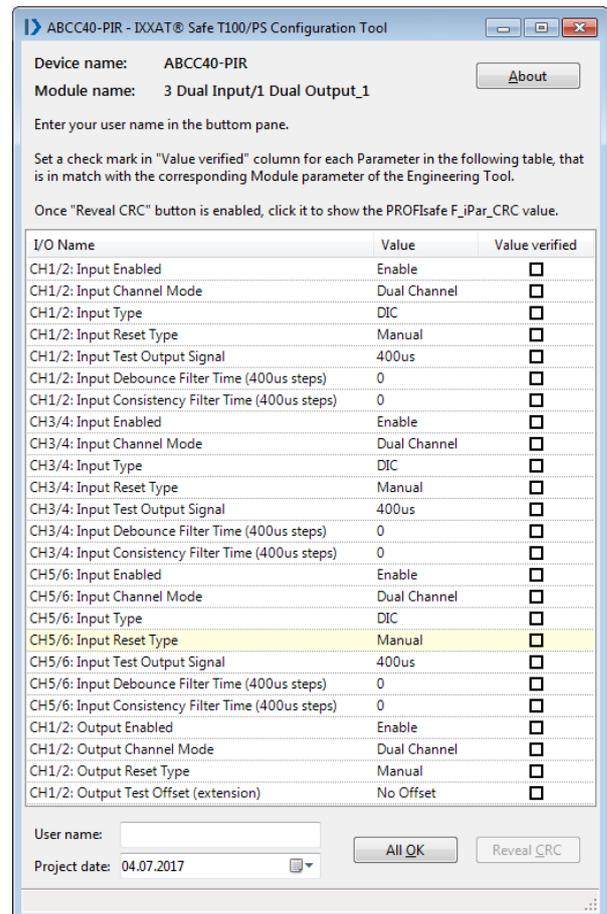


# IXXAT® Safe T100/PS Configuration Tool

## SAFETY MANUAL ENGLISH



## **HMS Technology Center Ravensburg GmbH**

Helmut-Vetter-Straße 2  
88213 Ravensburg  
Germany

Tel.: +49 751 56146-0  
Fax: +49 751 56146-29  
Internet: [www.hms-networks.de](http://www.hms-networks.de)  
E-Mail: [info-ravensburg@hms-networks.de](mailto:info-ravensburg@hms-networks.de)

## **Support**

For problems or support with this product or other HMS products please request support at [www.ixxat.com/support](http://www.ixxat.com/support).

Further international support contacts can be found on our webpage [www.ixxat.com](http://www.ixxat.com)

## **Copyright**

Duplication (copying, printing, microfilm or other forms) and the electronic distribution of this document is only allowed with explicit permission of HMS Technology Center Ravensburg GmbH. HMS Technology Center Ravensburg GmbH reserves the right to change technical data without prior announcement. The general business conditions and the regulations of the license agreement do apply. All rights are reserved.

## **Registered trademarks**

All trademarks mentioned in this document and where applicable third party registered are absolutely subject to the conditions of each valid label right and the rights of particular registered proprietor. The absence of identification of a trademark does not automatically mean that it is not protected by trademark law.

Document number: 4.02.0300.20001  
Version: 1.0  
Issue Date: 15.09.2017

<b>1</b>	<b>Preface.....</b>	<b>5</b>
	<b>1.1 Important User Information.....</b>	<b>5</b>
	1.1.1 T100/PS Configuration Tool safety precautions .....	5
	1.1.2 Liability .....	5
	1.1.3 Intellectual Property Rights .....	6
	1.1.4 Trademark Acknowledgements .....	6
	<b>1.2 About This Document.....</b>	<b>6</b>
	1.2.1 Related and Additional Documents.....	6
	1.2.2 Document History.....	7
	1.2.3 Conventions & Terminology .....	7
	1.2.4 Abbreviations .....	8
	<b>1.3 Restrictions.....</b>	<b>8</b>
	1.3.1 Handling.....	8
	1.3.2 Area of Application.....	9
	1.3.3 Validity of this Safety Manual.....	9
	<b>1.4 Support.....</b>	<b>9</b>
	<b>1.5 Product change requests.....</b>	<b>9</b>
<b>2</b>	<b>General Description.....</b>	<b>10</b>
	<b>2.1 Branding.....</b>	<b>12</b>
	2.1.1 Identification parameters.....	13
	2.1.2 Appearance.....	13
<b>3</b>	<b>Installation.....</b>	<b>15</b>
	<b>3.1 Verifying the Installation .....</b>	<b>15</b>
	3.1.1 Checksum file.....	15
	3.1.2 Checksum Computation.....	15
	3.1.3 Retrieving File Version.....	16
<b>4</b>	<b>Operation.....</b>	<b>17</b>
	<b>4.1 Starting the tool .....</b>	<b>17</b>
	4.1.1 TIA Portal .....	17
	4.1.2 Step 7.....	18
	<b>4.2 Creating the CRC .....</b>	<b>19</b>
	<b>4.3 Entering the CRC in the Engineering Tool .....</b>	<b>22</b>
	4.3.1 TIA Portal .....	22
	4.3.2 Step 7.....	23
	<b>4.4 System Validation .....</b>	<b>24</b>

**A Safety Integration Rules ..... 25**

**B Safety Configuration Rules ..... 26**

**C Applicable Standards ..... 28**

# 1 Preface

## When to Read and Use the Document

Whether you already have decided to develop an application with the IXXAT Safe T100 or not, you shall read this document as a first introduction on how to use the IXXAT Safe T100 Configuration Tool in the development process of a safety application. This document covers the installation and use of the Configuration Tool. It also documents the assumptions that have been made about the operating environment [Req.1.1-0], [Req.3.1-1] and other dependencies on related soft- and hardware [Saf.5-1].

## 1.1 Important User Information

This document is intended to provide a good understanding of the safe configuration process for the T100/PS. It contains information for the customer necessary for correct setup of the IXXAT Safe T100/PS in safety applications.

The reader of this document is expected to be familiar with functional safety related PLC programming, Siemens Engineering Tools and communication systems in general.

Along with the information giving a better understanding of the Configuration Tool, this document contains safety relevant advice, that must be followed by the integrator. These safety critical aspects are clearly marked with exclamation signs, .

A full list of all safety advices can be found in appendix A.

For more information, documentation etc., please visit the IXXAT web site, 'www.ixxat.com'.

### 1.1.1 T100/PS Configuration Tool safety precautions



The Configuration Tool contains measures against a set of reasonably foreseeable misuse which is the use of a product, process or service in a way not intended by the supplier, but which may result from readily predictable human behavior. Nevertheless, the integrator has to think about all reasonably foreseeable misuse and malevolent or unauthorized actions that may result in his applications and check if the measures of the Configuration Tool are strong enough to detect and safely treat these error sources.

### 1.1.2 Liability

Every care has been taken in the preparation of this manual. Please inform HMS Industrial Networks AB of any inaccuracies or omissions. The data and illustrations found in this document are not binding. We, HMS Industrial Networks AB, reserve the right to modify our products in line with our policy of continuous product development.

The information in this document is subject to change without notice and should not be considered as a commitment by HMS Industrial Networks AB. HMS Industrial Networks AB assumes no responsibility for any errors that may appear in this document.

There are many applications of this product. Those responsible for the use of this product must ensure that all the necessary steps have been taken to verify that the applications meet all performance and safety requirements including any applicable laws, regulations, codes, and standards.

HMS Industrial Networks AB will under no circumstances assume liability or responsibility for any problems that may arise as a result from the use of undocumented features, timing, or functional side effects found outside the documented scope of this product. The effects caused by any direct or indirect use of such aspects of the product are undefined, and may include e.g. compatibility issues and stability issues.

The examples and illustrations in this document are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular implementation, HMS Industrial Networks AB cannot assume responsibility for actual use based on these examples and illustrations.

### 1.1.3 Intellectual Property Rights

HMS Industrial Networks AB has intellectual property rights relating to technology embodied in the product described in this document. These intellectual property rights may include patents and pending patent applications in the US and other countries.

### 1.1.4 Trademark Acknowledgements

IXXAT® and Anybus® are registered trademarks of HMS Industrial Networks AB. All other trademarks are the property of their respective holders.

## 1.2 About This Document

For more information, documentation etc., please visit the HMS website, [www.hms-networks.com](http://www.hms-networks.com).

### 1.2.1 Related and Additional Documents

Document	Doc. Id.	Author
IXXAT Safe T100 – Safety Manual	4.02.0300.20000	HMS

A list of standards, relevant to this product, can be found in appendix A.

## 1.2.2 Document History

Revision	Date	Autor(s)	Chapter(s)	Description
1.0	2017-09-15	RaBa	All	Initial Creation

## 1.2.3 Conventions & Terminology

The following conventions are used throughout this manual:

- The terms 'T100' or 'module' refer to the IXXAT Safe T100 in general which describes the safety-protocol independent properties.
- The term 'T100/PS' refers to the IXXAT Safe T100 module running the PROFIsafe (PS) safety protocol.
- The term 'Configuration Tool' refers to the IXXAT Safe T100/PS Configuration Tool
- The terms integrator or user refer to a person operating or handling the Configuration Tool.
- Installation rules, marked with [IR-x], shall be followed by the integrator when setting up the engineering environment, including the installation of the Configuration Tool
- Safety configuration rules, marked with [SCR-x], shall be followed by the integrator when using the Configuration Tool in the T100/PS configuration process.
- Information necessary for the HMS-internal requirement tracking are labeled with [Saf.X], [Req.X] or [Asm.X].
- Numbered lists provide sequential steps.
- Bulleted lists provide information, not procedural steps.
-  This sign is used to mark safety relevant requirements or information which has to be fulfilled by the user.

In accordance with the ISO/IEC Directives, Part 2, Fifth Edition, 2004, the following verbal forms are used in this document with the following meanings:

- Requirements:

shall            is required  
 shall not      is not allowed, is not permitted

-Recommendations:

should        is recommended  
 should not    is not recommended

- Permissions:

May is allowed  
 need not is not required

- Possibility and capability:

can is able, is possible  
 cannot is not able, is not possible

### 1.2.4 Abbreviations

Word	Explanation
ABCC	Anybus CompactCom
CRC	Cyclic Redundancy Check
PLC	Programmable Logic Controller

## 1.3 Restrictions

### 1.3.1 Handling

[SCR-1.1] This safety product shall be operated and maintained only by qualified personnel [Saf.6.1-1] [Asm.3.1-1]. Qualified personnel in the context of this safety manual is:



- familiar with the basic safety concepts and regulations for safety and accident prevention.
- experienced in the field of safety applications to recognize or avoid dangerous situations.
- experienced in the application of Siemens safety Engineering Tools.



[SCR-1.2] The adequate expertise of the personnel shall be examined and documented. [Saf.6.1-2]



[SCR-1.3] Responsibility for configuring and checking of the parameters may be performed by different users. The responsibilities of the involved users shall be documented. [Saf.6.1-3]



[SCR-1.4] The user shall take additional measures in order to detect failure of the computers and required peripheral hardware, the Configuration Tool is executed on. [Saf.6.2-2]

### 1.3.2 Area of Application

[SCR-1.5] The T100/PS Configuration Tool shall only be operated in an environment that meets the following conditions [Saf.6.3.1-2], [Saf.6.2-1]:



- The tool shall be run under Microsoft Windows 7 operating system or later. [Req.4.1-1]
- The tool shall be run on a 32Bit or 64Bit operating system. [Req.4.1-2]
- The tool shall be only used with Siemens Engineering Tool Step 7 V5.5 Service Pack 2 or later. [Req.4.1-3]
- Microsoft .NET Framework 2 [Req.4.3-9]



[SCR-1.7] The Configuration Tool shall be only operated with GSDML files that have been certified by an official PROFINET certification authority. [Saf.6.1-5] [Saf.6.1-6]

### 1.3.3 Validity of this Safety Manual



[SCR-1.8] This safety manual is valid for the following HMS product [Saf.6.3.2-3]:

- 1.02.0300.00000 IXXAT Safe T100/PS Configuration Tool Version 1.0.494.0

## 1.4 Support

For more information on HMS and IXXAT products, FAQ lists and installation tips, please refer to the support area on the respective home pages, (<http://www.hms-networks.com>, <http://www.ixxat.com>).

There you will also find information on current product versions and available updates. For general contact information and where to find support, please refer to the contact and support pages at [www.hms-networks.com](http://www.hms-networks.com) or [www.ixxat.com](http://www.ixxat.com).

## 1.5 Product change requests

Product change requests or any detected product error shall be reported to HMS using the contact form of the support web page under the URL [www.ixxat.com/support](http://www.ixxat.com/support).

## **2 General Description**

The T100/PS is a hardware module providing safe digital inputs and outputs. Various measures ensure a safe operation of the hardware. This includes monitoring of the attached PROFIsafe connection [Saf.6.6-1], [Saf.6.6-2], [Saf.6.8-1] and detection of internal hardware or software failures [Saf.6.8-2], [Saf.6.9-1]. If an error is detected, the T100/PS enters the safe state and thus ensures always defined characteristics.

The T100/PS is configurable by means of individual parameters (iParameter), which affect the behavior of the safe in- and outputs. These parameters are sent to the T100/PS by the PLC on each startup. The transfer of the parameters is performed using an unsafe communication channel. In order to provide a safe operation, there has to be a mechanism which ensures validation of the transferred parameter. This is achieved by transferring an additional checksum for all parameters. The T100/PS verifies the parameters against this checksum and stays in safe state if a mismatch is detected [Saf.6.3.2-6] [Saf.6.3.2-5] [Saf.6.9-4]. The parameters also contain the major version [Saf.6.9-2] and the IO channel ID of the expected hardware [Saf.6.9-3], which are also covered by the checksum.

The IXXAT Safe T100/PS Configuration Tool is responsible for creating the required checksum for the iParameters. It also provides a verification of the plausibility of the entered parameters. The Tool is part of a superior configuration process which is illustrated in Figure 2-1 and Table 2-1 [Saf.3.1-1].

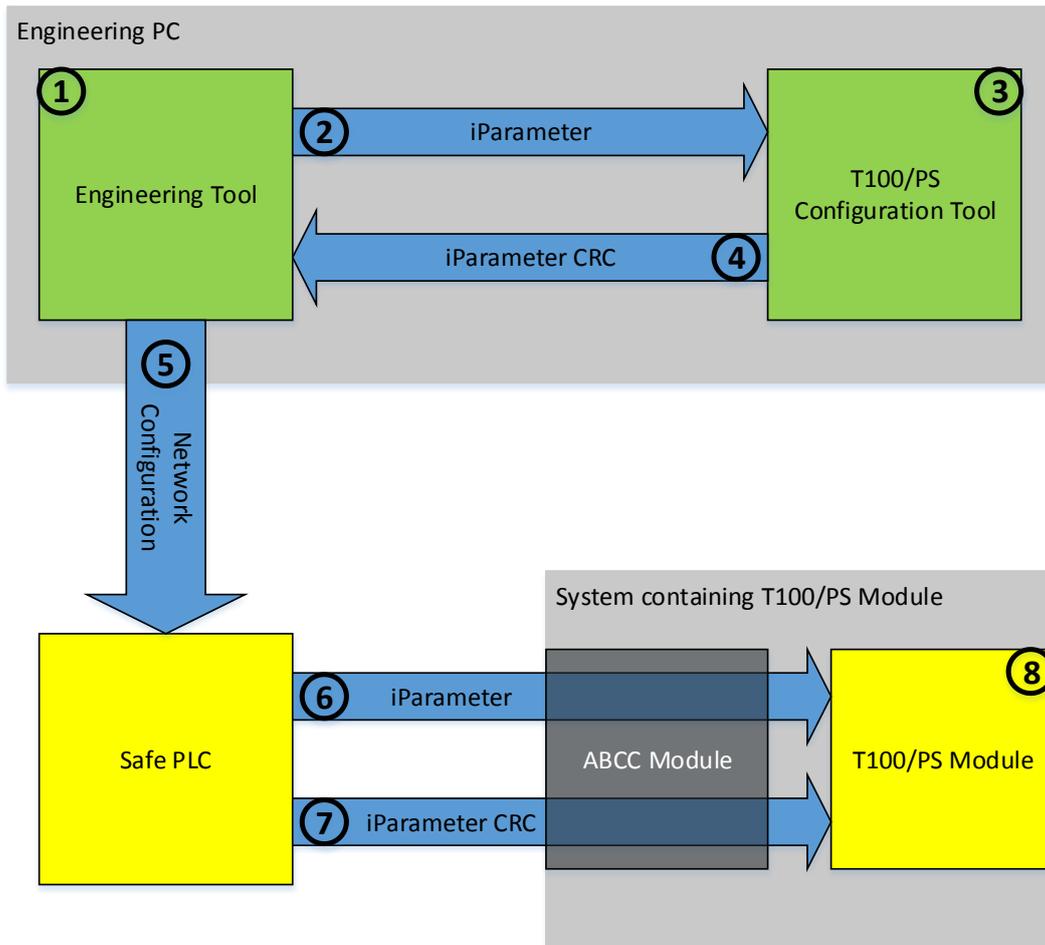


Figure 2-1 : Schematic of the configuration process for the T100/PS

No.	Action
1.	The user creates a project which contains a T100/PS and configures the values of the iParameters.
2.	The user starts the T100/PS Configuration Tool. The iParameters are transferred to the Tool by the Engineering Application
3.	The user checks the correctness of the iParameters by comparing the displayed values of T100/PS Configuration Tool and Engineering Application.
4.	The user copies the CRC generated by the Configuration Tool to the corresponding parameter in the Engineering Application.
5.	The Engineering Application downloads the network configuration to the safe PLC. This includes the iParameters and the iParameter CRC. The Engineering Application checks if the physical network is faultless [Saf.6.4-1] and if the correct PLC [Saf.6.5-1] and PLC firmware [Saf.6.5-2] is installed in the network.
6.	On startup the PLC transfers the iParameters to the T100/PS. The PLC verifies that the ABCC module is faultless [Saf.6.7-1] and implements the correct industrial Ethernet protocol [Saf.6.7-2].
7.	On startup the PLC transfers the iParameter CRC to the T100/PS using the safe channel
8.	The T100/PS verifies the iParameters against the iParameter CRC and only leaves the safe state if the verification succeeded.

**Table 2-1 : Configuration steps required for the T100/PS**

## 2.1 Branding

The IXXAT Safe T100/PS Configuration Tool as described in this manual is a template, usable with the certified default GSDML files for ABCC M30 and M40 modules. Thus the screenshots and the tool related names in this manual shall be considered as exemplary.

For usage with custom deviations of the IXXAT Safe T100/PS and ABCC modules, an adapted version of the tool is required. The IXXAT Safe T100/PS Configuration Tool provides a mechanism to modify the mandatory technical parameters and also the appearance of the tool [Req.4.3-10] . This mechanism is termed branding in the subsequent chapters.

Changing the parameters covered by branding does not require a recertification of resulting tool. The creation of the tool is done by HMS, based on the branding parameters provided by the customer.

### 2.1.1 Identification parameters

The branded tool is bound to specific sets of Vendor ID, Device ID and Module Identification Number. The device tool menu entry in the Engineering Tool is only activated for devices which match the specified identification triple (as defined in the device's GSDML file). The tool may be bound to more than one set of Vendor ID, Device ID and Module Identification Number.

Parameter	Description
Vendor ID	The Vendor ID of the devices supported by the tool.
Device ID	The Device ID of the devices supported by the tool.
Module Identification Number	The Module Identification Number of the devices supported by the tool.

Table 2-2 : Identification parameters of the tool branding

### 2.1.2 Appearance

Branding of appearance includes the device tool menu of the Engineering, as well as the main window and the about window of the IXXAT Safe T100/PS Configuration Tool. The actual appearance of the device tool menu depends on the Engineering Tool. Elements of the IXXAT Safe T100/PS Configuration Tool that are affected by branding are marked in Figure 2-2 and Figure 2-3. A list of all appearance parameters is given in Table 2-3.

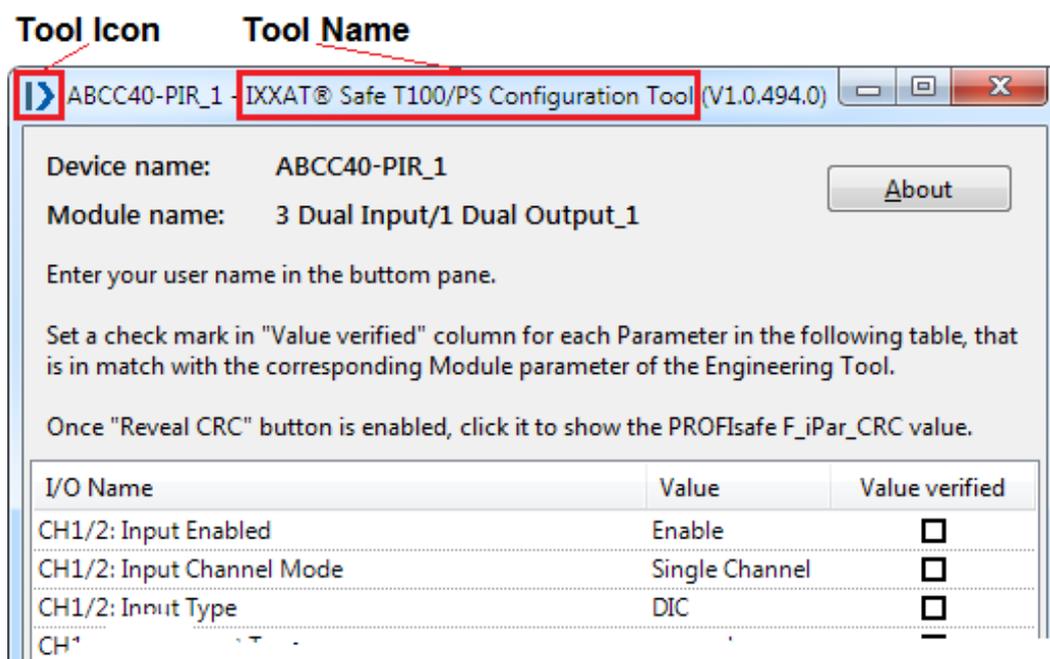
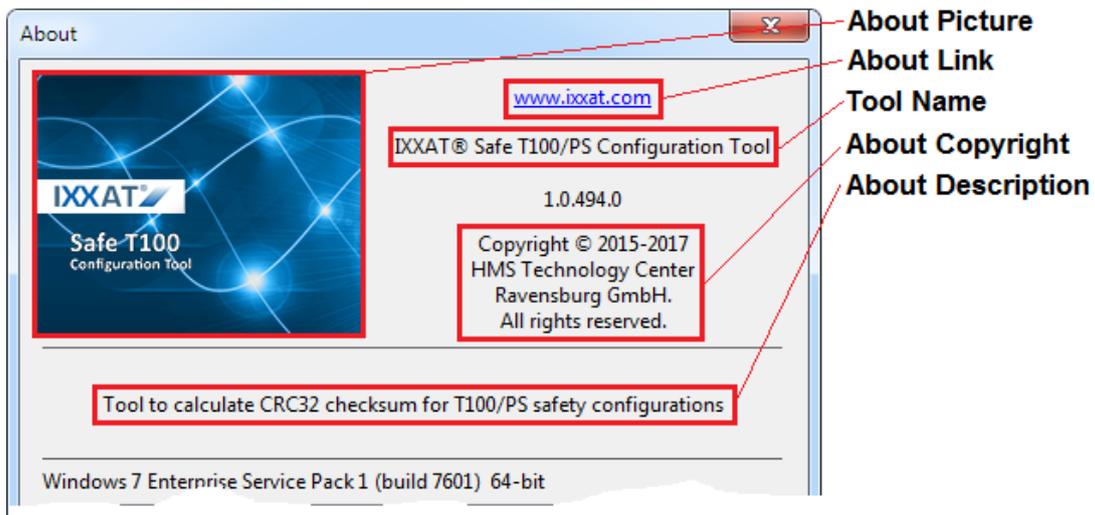


Figure 2-2 : Elements of the main window affected by branding



**Figure 2-3 : Elements of the about window affected by branding**

Parameter	Description
Device tool menu item – Tool Name	The name that is displayed in the Engineering Tool. The name is usually displayed as menu item or in a separate dialog.
Device tool menu item - Description	An additional description that is displayed in the Engineering Tool. Usually displayed as a tool tip.
Tool Icon	The icon used for the main window of the tool.
Tool Name	The tool name that is used in the caption of the main window and in the corresponding text field of the about dialog.
About Picture	The picture displayed in the about dialog.
About Link - Text	The text that is displayed for the link in the about dialog.
About Link - URL	The URL that is opened when clicking the link in the about dialog.
About Copyright	The copyright that is displayed in the about dialog.
About Description	The descriptive text that is displayed in the about dialog.

**Table 2-3 : Appearance parameters of the tool branding**

## 3 Installation

To install IXXAT® Safe T100/PS Configuration Tool, start the installation program by running the setup executable available on the product homepage. Follow the instructions of the installation program.

### 3.1 Verifying the Installation

A separate checksum file is provided on the product homepage. This file contains checksums and versions of the installed files (not the installer itself). The checksums are required in order to verify the correctness of the installation of the certified tool version.



[IR-3.1] The user shall verify if the certified version of the Configuration Tool (see chapter 1.3.3) was installed correctly. The default installation directory is “Program Files (x86)\HMS\IXXAT\_SafeT100PsCrcCalc” or “Program Files\HMS\IXXAT\_SafeT100PsCrcCalc” [Asm.7-1]. The check shall include:

- Existence of the mandatory files
- Correctness of the MD5 checksum of the files
- Correctness of the file version, if a version is available for the file

#### 3.1.1 Checksum file

The checksum file has the format shown in Table 3-1. In the first column the MD5 checksum of the file is contained. The second column contains the version of the file. Version are only available for EXEs and DLLs. For other files a dash indicates, that no version does exist. The last column contains the relative path of the file within the installation directory.

Hash	Version	File
D34F856E65BFF04AAB763F1E0A7B3598	1.0.494.0	IxxatSafeT100PsCrcCalc.exe
03EA829A0E4BA566F6B6AF06CBE08C3F	-	IxxatSafeT100PsCrcCalc.xml
93DA96C6D7D8E4821F69FFB06FCAD8C6	1.0.494.0	IxxatT100Verifier.dll
94B3F9D92905CF6C09DAB3E20D70BD75	1.0.494.0	IxxatTciDataReader.dll
253CD540F032DCB4CC8BCD396F69C232	-	TCI-Primitives-v1.1.xsd
C41F6D42CDD5768607AB554BE6067F26	-	TCI-TPF-v1.1.xsd

**Table 3-1 : Format of the T100/PS Configuration Tool checksum file**

#### 3.1.2 Checksum Computation

The checksums of the installed files can be computed using the tool **CertUtil.exe**. This tool is a part of the Windows operating system and is available without additional installation. By executing the command line **CertUtil.exe -hashfile [Filename] MD5** the tool computes the MD5

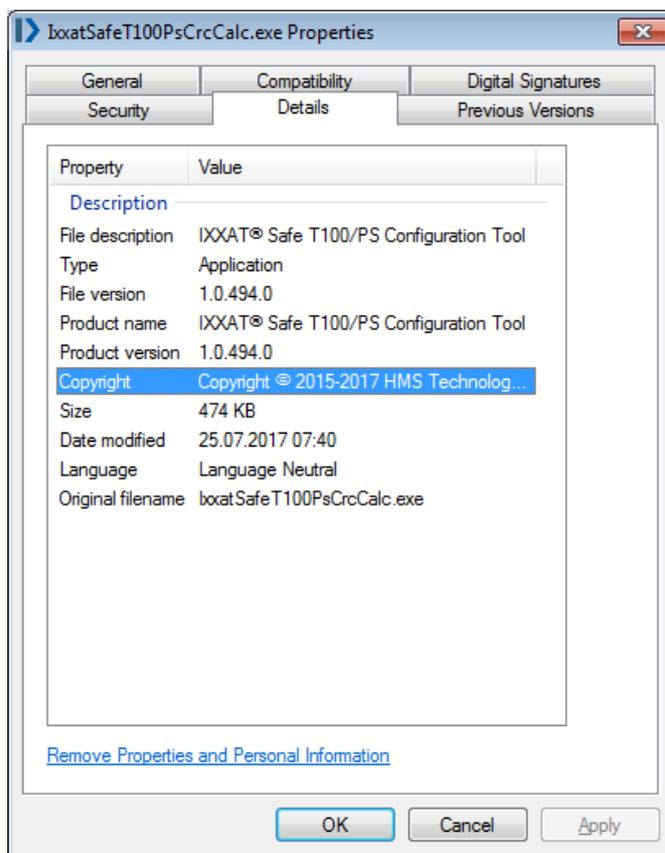
checksum for a file. An example of the output is shown in Table 3-2. The bold line represents the computed checksum.

```
C:\> CertUtil -hashfile IxxatSafeT100PsCrcCalc.exe MD5
MD5 hash of file IxxatSafeT100PsCrcCalc.exe:
1c d8 3b 5e b2 95 33 a9 62 7d 66 1b 7f 8e 42 de
CertUtil: -hashfile command completed successfully.
```

**Table 3-2 : Example of the output of the CertUtil .exe**

### 3.1.3 Retrieving File Version

A file version is only available for EXE and DLL files. The version of those files can be displayed using the Windows File Explorer. By right-clicking the file and selecting Properties, the properties dialogs opens. The version is located on the Details tab of the dialog (Figure 3-1).



**Figure 3-1 : Example of the version dialog**

## 4 Operation

### 4.1 Starting the tool

We assume that the user has installed the Configuration Tool and verified the correctness of the installation (see chapter 3). We also assume the Engineering Tool (TIA Portal or Step 7) is started and a project containing the T100/PS does already exist.

#### 4.1.1 TIA Portal

In TIA Portal the Configuration Tool is accessed via the device view of the T100/PS device.

By selecting the menu item “Start device tool”, in the context menu of the safety module (Figure 4-1), the selection dialog for device tools is opened (Figure 4-2).

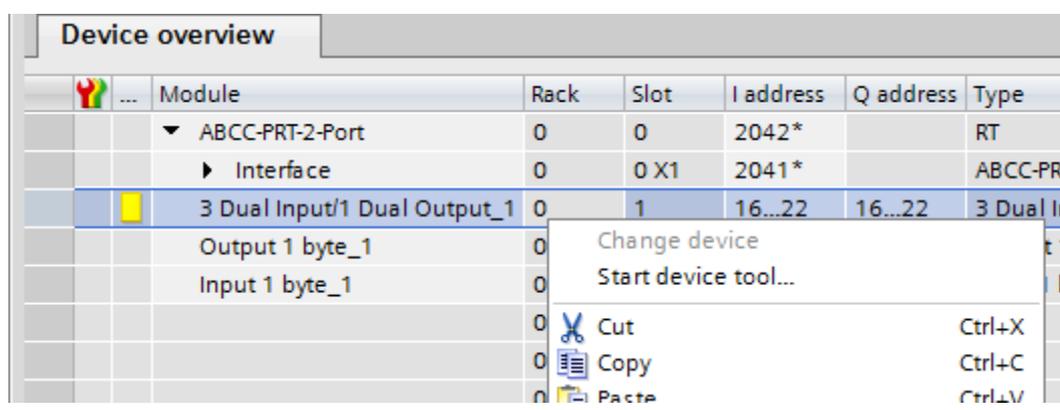


Figure 4-1 : Device view and context menu of the safety module

In the dialog window the Configuration Tool is started by selecting the entry “IXXAT Safe T100/PS iParameter CRC calculation” and pressing the “Start” button.

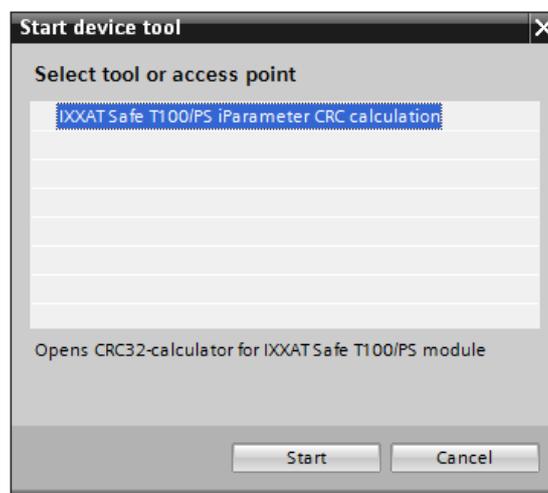
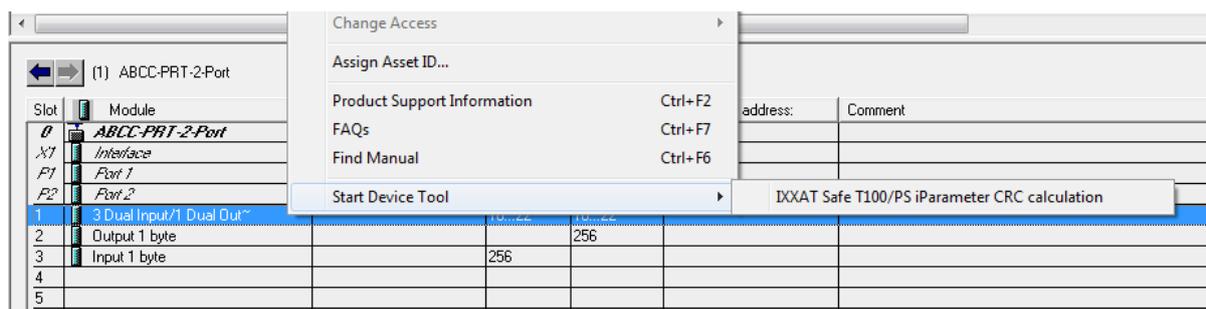


Figure 4-2 : Device tool selection dialog

### 4.1.2 Step 7

In Step 7 the Configuration Tool is accessed via the hardware configuration window of the T100/PS device.

By selecting the T100/PS module in the view, the module list of the device is displayed (Figure 4-3). By selecting the menu item “Start device tool” →” IXXAT Safe T100/PS iParameter CRC calculation”, in the context menu of the safety module, the Configuration Tool is started. Because of naming limitation in STEP 7, the name of the safety module may be truncated.



**Figure 4-3 : Hardware configuration windows (section module list) and context menu of the safety module**

## 4.2 Creating the CRC



[SCR-4.1] The user shall verify that he is working with the certified version of the Configuration Tool (see chapter 1.3.3) [Asm.7-1]

When the tool is started the main window is displayed (Figure 4-4). The parameter list displays iParameters according to the definitions of the GSDML file, together with the values entered in the Engineering Tool [Req.5.1-2].

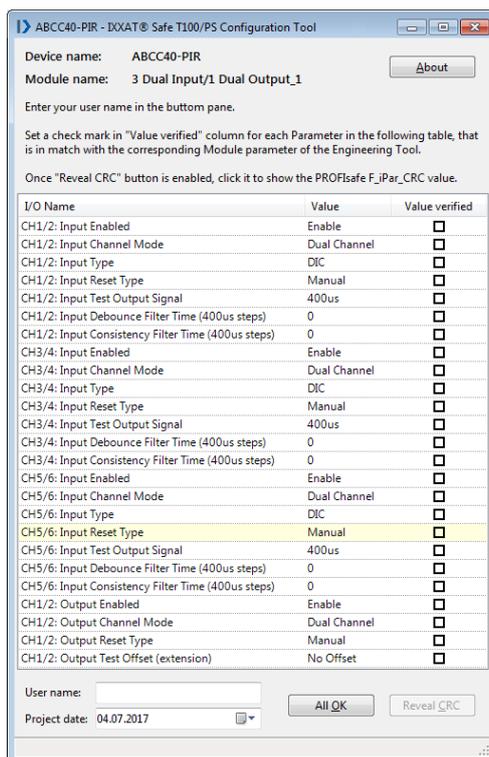


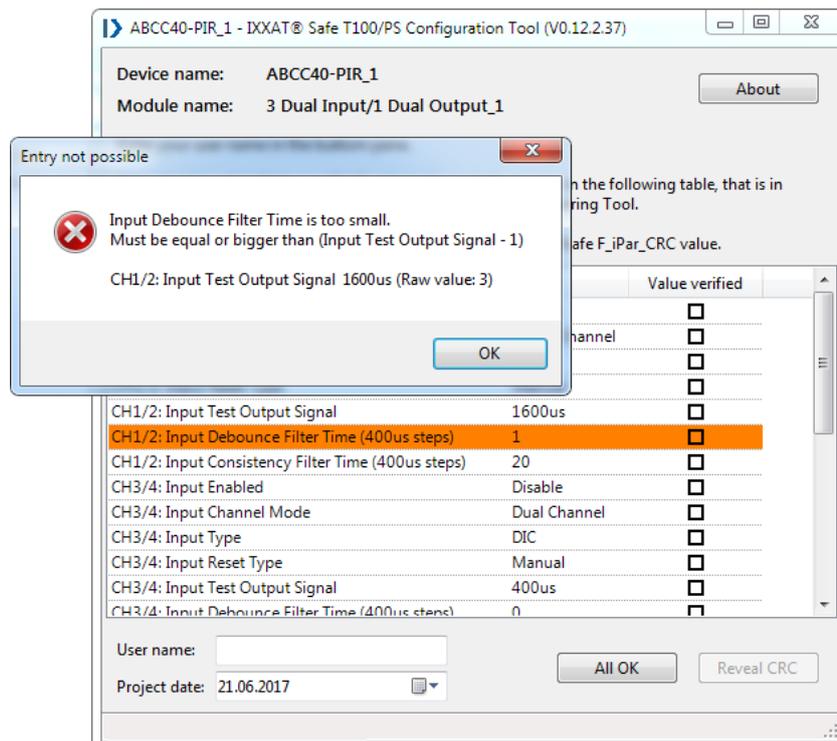
Figure 4-4: Main window of the T100 Configuration Tool



[SCR-4.2] The user shall verify the correctness of the parameters by comparing them to the values displayed in the Engineering Tool and against the desired values. [Saf.4.1-2], [Saf.6.3.2-4]

In order to verify the values, the user shall confirm the correctness by checking the corresponding check box of each values. This may be done manually for each value or by clicking the “All OK” button.

The tool performs a plausibility check of the iParameter values with respect to the capabilities of the T100/PS module [Req.5.1-5]. If a parameter is not valid, the corresponding row is displayed in a different color. In this case parameter cannot be marked as verified. By clicking the row, an error message is displayed (Figure 4-5).



**Figure 4-5: Main window of the T100 Configuration Tool when a parameter is not plausible**

If the displayed parameters exceed the display space, the user shall also scroll down to the last entry, in order to review all values. The user shall also enter a user name in the “User name” text box and may update the project date in the “Project date” control.



[SCR-4.4] The user shall enter the user name and set a project date.  
[Saf.6.1-4]

If all steps have been proceeded, the “Reveal CRC” button becomes active [Saf.4.2-1]. By clicking the button, the CRC is displayed. Depending on the used Engineering Tool, the dialog in Figure 4-6 or Figure 4-7 is displayed.

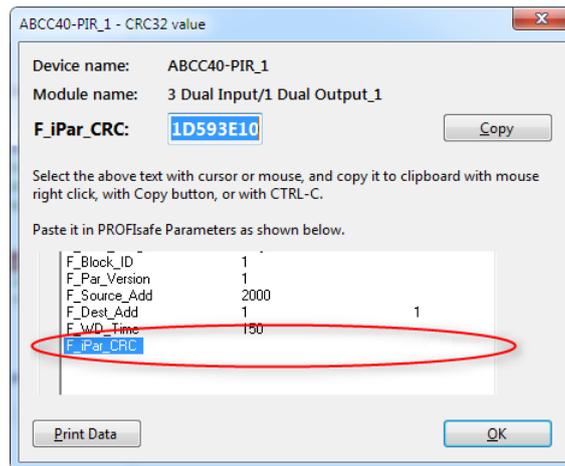


Figure 4-6 : CRC dialog for Step 7

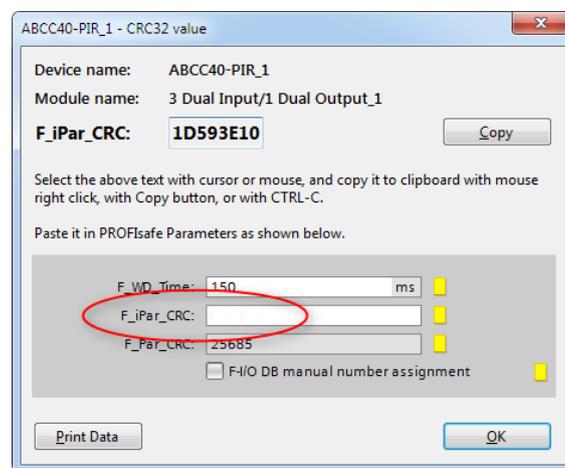


Figure 4-7 : CRC dialog for TIA Portal

By clicking the “Copy” button, the CRC is copied to the Clipboard and is available for insertion in the Engineering Tool.

If an error occurs, the main window either displays an error message or the parameter list stays empty. In this case the CRC cannot be retrieved. This is the safe state of the application [Saf.4.3-1].

The configured iParameter set, the calculated iParameter CRC as well as the user name and project data can be printed using the “Print Data” button. When pressing the button, the printer selection dialog occurs. After confirming the dialog the table set parameters is printed.



[SCR-4.5] The user shall document each version of the iParameters in use. [Saf.7-2]

### 4.3 Entering the CRC in the Engineering Tool

The T100/PS Configuration Tool only implements measures to avoid manipulation of the CRC value within the tool itself. It does not implement a manipulation protection for the CRC value once it is entered in the Engineering Tool



[SCR-4.6] The user shall utilize the password protection of the Engineering Tool, in order to protect the CRC value from accidental or malicious manipulation.

#### 4.3.1 TIA Portal

In TIA Portal the input field for the iParCrc is accessible via the device view of the T100/PS device (Figure 4-8). The mask is located under Properties → General → PROFIsafe. The CRC copied from the Configuration Tool shall be pasted to the input mask “F\_iPar\_CRC”

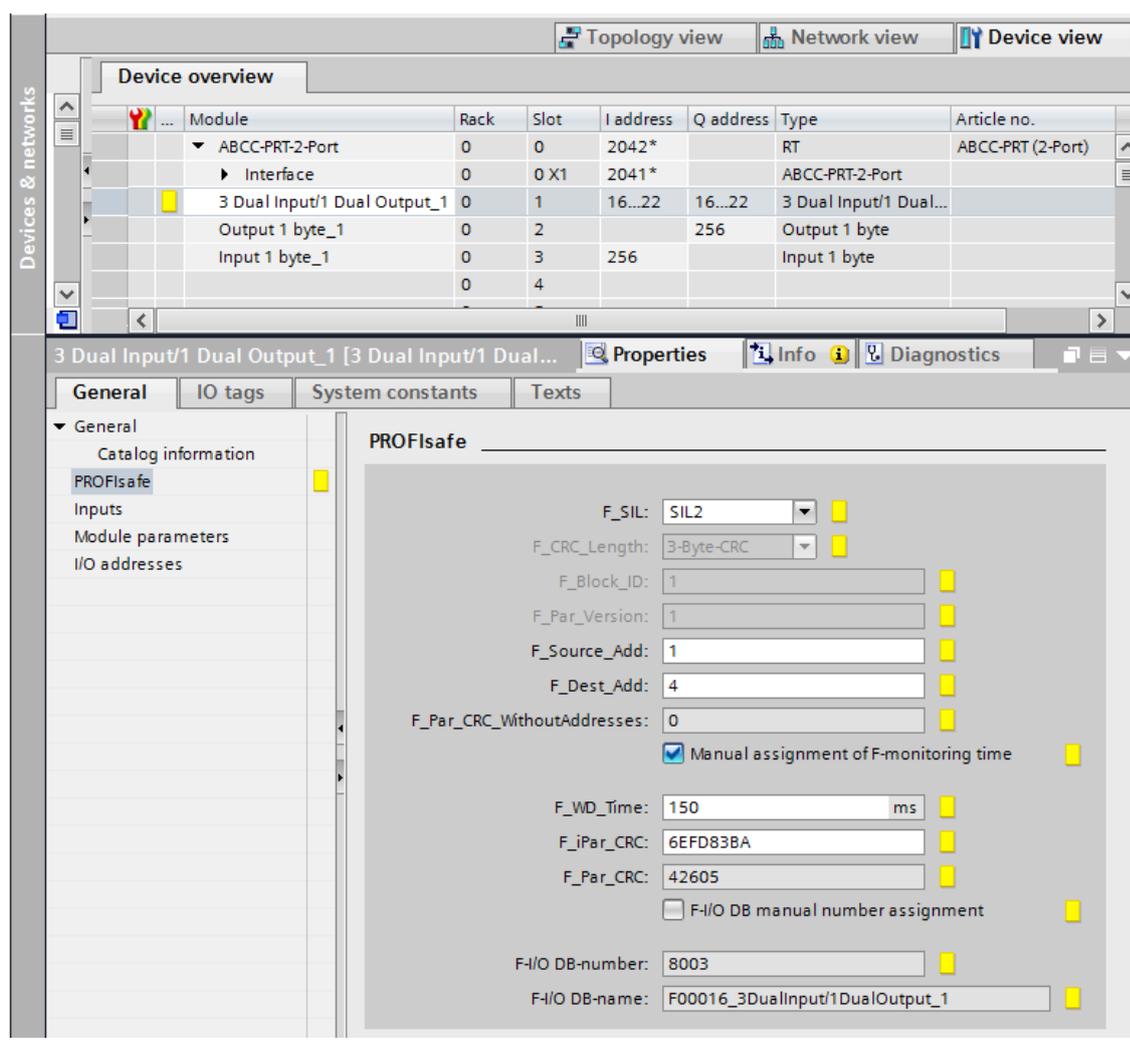


Figure 4-8 : Input mask for the iParCrc in TIA Portal

### 4.3.2 Step 7

In Step 7 the input field for the iParCrc is accessible via the hardware configuration window of the T100/PS device.

By selecting the T100/PS module in the view, the module list of the device is displayed (Figure 4-9). By selecting the menu item “Object Properties” in the context menu of the safety module, the properties dialog (Figure 4-10), containing the PROFIsafe parameters, is opened. Because of naming limitation in STEP 7, the name of the safety module may be truncated. The CRC copied from the Configuration Tool shall be pasted to the input mask “F\_iPar\_CRC”.

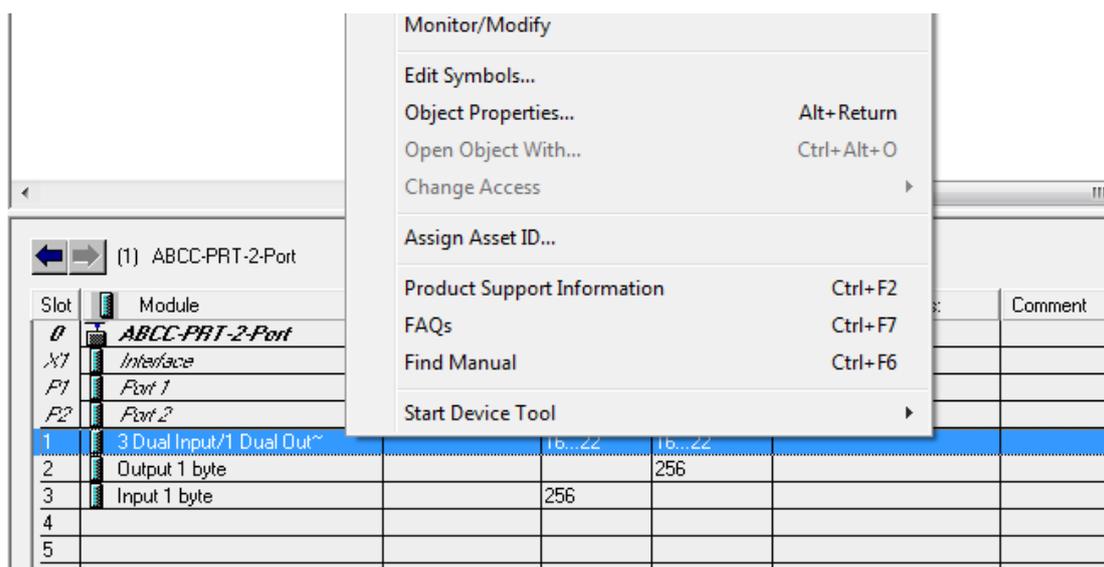


Figure 4-9 : Hardware configuration windows (section module list) and context menu of the “3 Dual Input/1 Dual Output” module

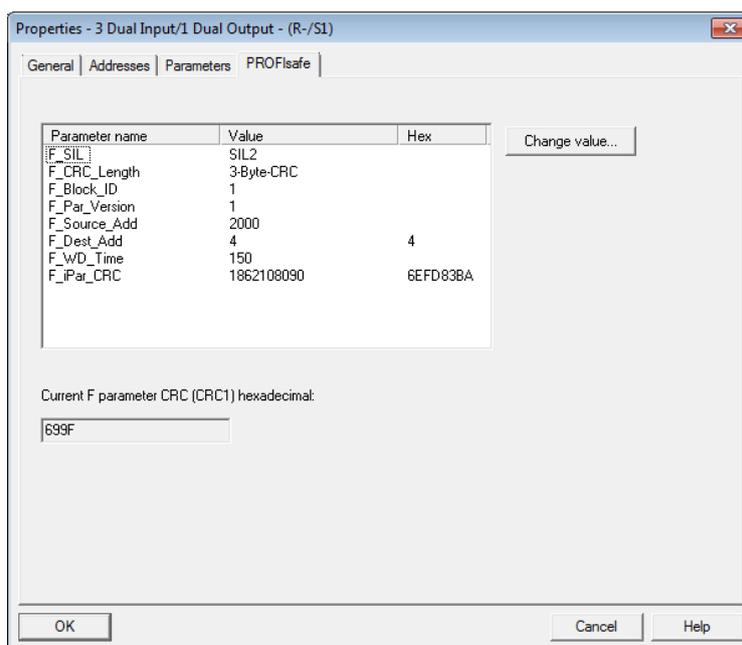


Figure 4-10 : PROFIsafe parameters in Step 7

## 4.4 System Validation

The configured parameters may be correct from a logical standpoint, but may however cause not the expected behavior in the overall safety system. Thus a validation with physical hardware is required in order to ensure safe operation.



[SCR-4.7] During commissioning of the final application, the user shall validate the iParameters in combination with physical hardware and the application, in order to ensure the actual behavior of the T100/PS meets the expected one.

## A Safety Integration Rules



(IR-3.1)The user shall verify if the certified version of the Configuration Tool (see chapter 1.3.3) was installed correctly. [Asm.7-1]. The check shall include:

- Existence of the mandatory files
- Correctness of the MD5 checksum of the files
- Correctness of the file version, if a version is available for the file

## B Safety Configuration Rules

(SCR-1.1) This safety product shall be operated and maintained only by qualified personnel [Saf.6.1-1] [Asm.3.1-1]. Qualified personnel in the context of this safety manual is:



- familiar with the basic safety concepts and regulations for safety and accident prevention.
- experienced in the field of safety applications to recognize or avoid dangerous situations.
- experienced in the application of Siemens safety Engineering Tools.



(SCR-1.2) The adequate expertise of the personnel shall be examined and documented. [Saf.6.1-2]



(SCR-1.3) Responsibility for configuring and checking of the parameters may be performed by different users. The responsibilities of the involved users shall be documented. [Saf.6.1-3]



(SCR-1.4) The user shall take additional measures in order to detect failure of the computers and required peripheral hardware, the Configuration Tool is executed on. [Saf.6.2-2]

(SCR-1.5) The T100/PS Configuration Tool shall only be operated in an environment that meets the following conditions [Saf.6.3.1-2], [Saf.6.2-1]:



- The tool shall be run under Microsoft Windows 7 operating system or later. [Req.4.1-1]
- The tool shall be run on a 32Bit or 64Bit operating system. [Req.4.1-2]
- The tool shall be only used with Siemens Engineering Tool Step 7 V5.5 Service Pack 2 or later. [Req.4.1-3]
- Microsoft .NET Framework 2 [Req.4.3-9]



(SCR-1.7) The Configuration Tool shall be only operated with GSDML files that have been certified by an official PROFINET certification authority. [Saf.6.1-5] [Saf.6.1-6]



(SCR-1.8) This safety manual is valid for the following HMS products [Saf.6.3.2-3]:

- 1.02.0300.00000 IXXAT Safe T100/PS Configuration Tool Version 1.0.494.0



(SCR-4.1) The user shall verify that he is working with the certified version of the Configuration Tool (see chapter 1.3.3) [Asm.7-1]



(SCR-4.2) The user shall verify the correctness of the parameters by comparing them to the values displayed in the Engineering Tool and against the desired values. [Saf.4.1-2], [Saf.6.3.2-4]



(SCR-4.4) The user shall enter the user name and set a project date. [Saf.6.1-4]



(SCR-4.5) The user shall document each version of the iParameters in use. [Saf.7-2]



(SCR-4.6) The user shall utilize the password protection of the Engineering Tool, in order to protect the CRC value from accidental or malicious manipulation.



(SCR-4.7) During commissioning of the final application, the user shall validate the iParameters in combination with physical hardware and the application, in order to ensure the actual behavior of the T100/PS meets the expected one.

## C Applicable Standards

---

### **IEC 61508:2010**

Functional safety of electrical/electronic/programmable electronic safety-related systems

Part 1 – Part 7

---

### **EN 62061:2005 + AC:2010 + A1:2013**

Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems

---

### **IEC 61784-3-3**

Industrial communication networks – Profiles – Part 3-3: Functional safety fieldbuses – Additional specifications for CFP 3

---

SIMATIC PROFI-safe driver V2.1 for F-Slaves - Manual

Edition 01 / 2009

“HB\_PST\_2009\_01\_ENU.pdf”

---