EUCHNER

Software Manual

Transponder Coding TC2

Application Software

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Contents

1. General notes

1.1. Use of the manual

This manual describes the function and use of the Transponder Coding TC2 application software (order no. 8000151), version V2.0.X.

1.2. Scope

Important!

- Make sure to use the operating instructions valid for your product version. Please contact the EUCHNER support team if you have any questions.
- Your software may have been updated. Make sure that the software documentation corresponding to the update is available and is observed.

1.3. Requirement for the user

Proper use of the Transponder Coding TC2 application software requires knowledge about handling the Identification System CIS and/or the Electronic-Key-System EKS or EKS2.

1.4. System requirements

Hardware:	Standard PC
Operating system:	Windows® 10, 64-bit
	Windows® 11

1.5. Use of brand names

Microsoft Windows® is a registered trademark of Microsoft Corporation.

2. General function of the application software

The Transponder Coding TC2 application software is used on a standard PC for reading and writing CIS data carriers or EKS or EKS2 Electronic-Keys. The software is used in conjunction with an EUCHNER read/write station with serial interface or USB interface.

The following transponders can be written:

System	Transponder
Identification System CIS	CIS3(A) with 16-byte read/write memory
	CIS3A-Mini with 116-byte read/write memory
	CIS3A-Mini with 5-byte read-only memory
Electronic-Key-System EKS	Electronic-Key EKS with 116 bytes read/write memory
Electronic-Key-System EKS2	Electronic-Key EKS2 with MIFARE DESFire transponder

You will find further information about writing data to the transponders in the manuals for the related read/write stations.

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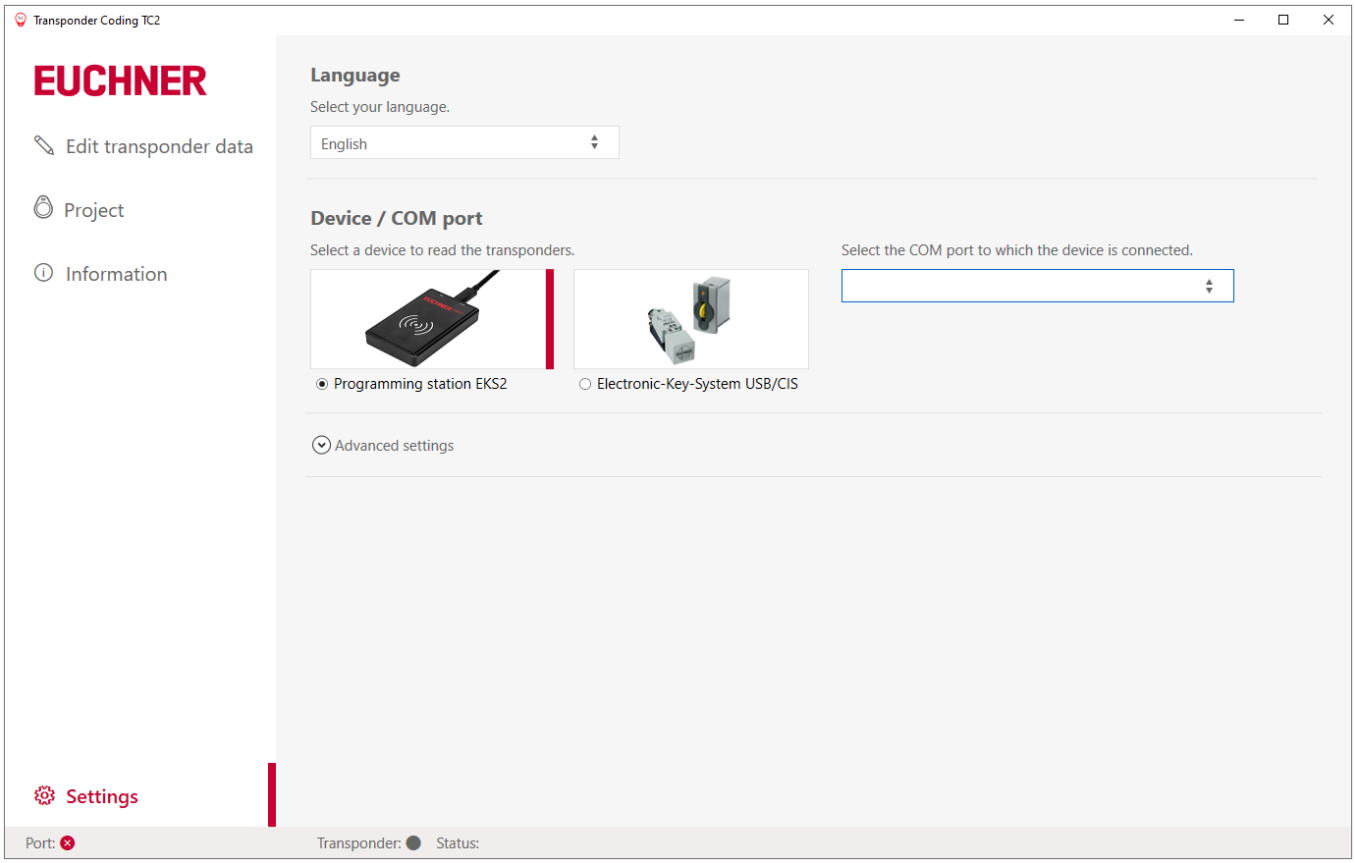
3. Installing Transponder Coding TC2 and starting it for the first time

1. Use the supplied link to download the ZIP folder Euchner_Transponder_Coding_2_8000151-....zip. Unzip the folder and save it to a local directory on the PC.
2. Run the *TC2.exe* application.

➡ The *Settings* window appears.



3. Select the language.
4. Connect the read/write station to the PC and select the corresponding device.
5. Select the COM port where the read/write station is connected.

➡ The connection to the read/write station is established.

Important!

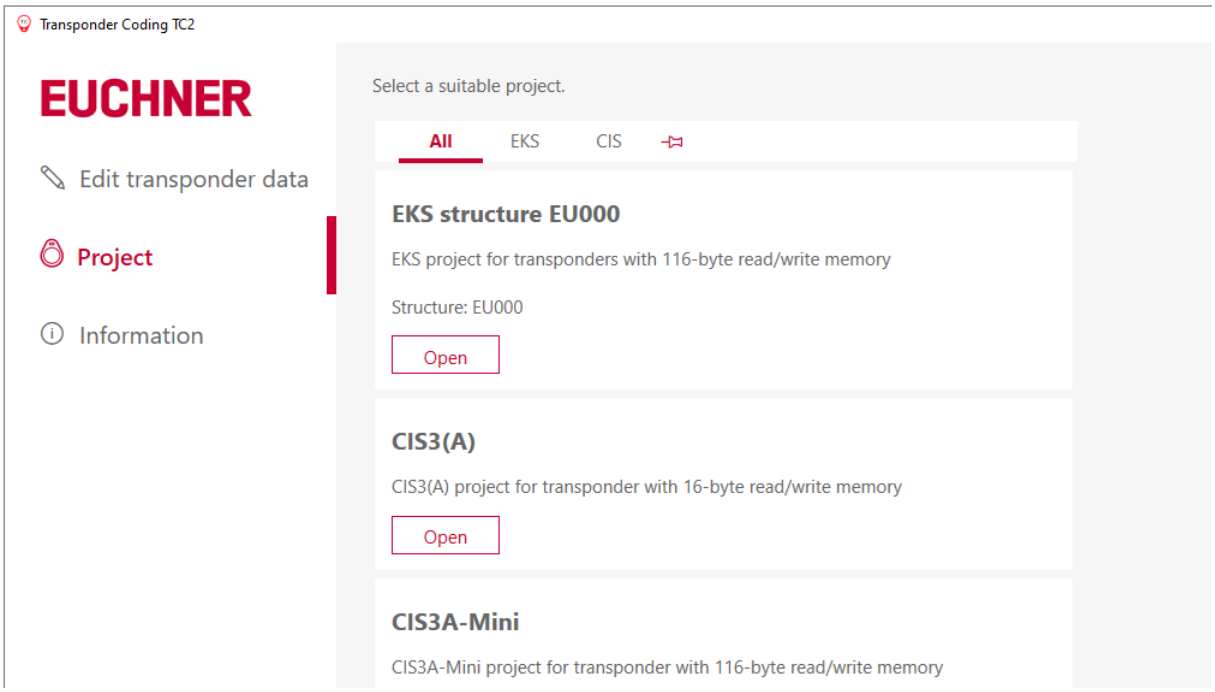
- Whenever the program is started again, the *Edit transponder data* menu item will display the most recently used window.
- If you would like to change the settings after starting the program for the first time, select the *Settings* menu item in the navigation area.

4. Selecting project

Prerequisite:

‣ A read/write station is connected.

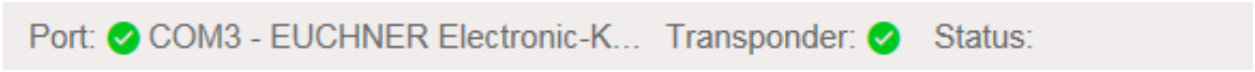
1. Click *Project* in the navigation area.
2. Select a project using the *All* tab or the tab for the corresponding system.



The following selection options are available:

Project	System	Further information
EKS2 structure EU001	Electronic-Key-System EKS2	*10.1. EKS2 structure EU001 on page 12*
EKS2 structure EU002		*10.2. EKS2 structure EU002 (only for machine manufacturers) on page 13*
EKS structure EU000	Electronic-Key-System EKS	*9.1. EKS structure EU000 on page 11*
CIS3(A)	Identification System CIS	Related operating instructions
CIS3A-Mini		
CIS3A-Mini unique		

➡ The status bar at the bottom of the window displays the COM port used and the selected system:



If the connection to the read/write station is interrupted, this situation is indicated in the *Status* field.

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➡ Depending on the selected project, different menu items are displayed in the navigation area:

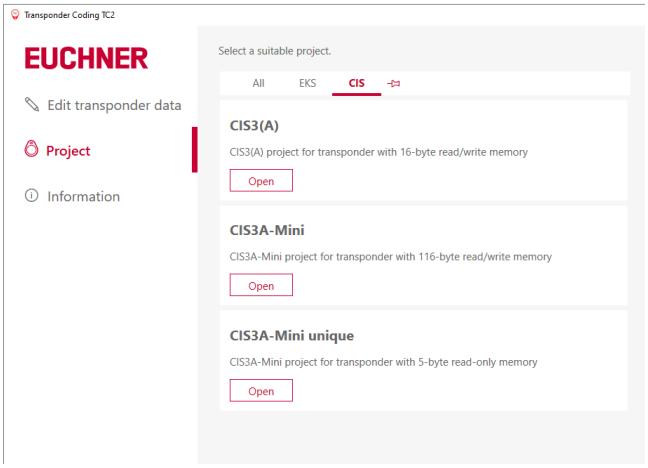


Fig. 1: Navigation area, EKS/CIS projects

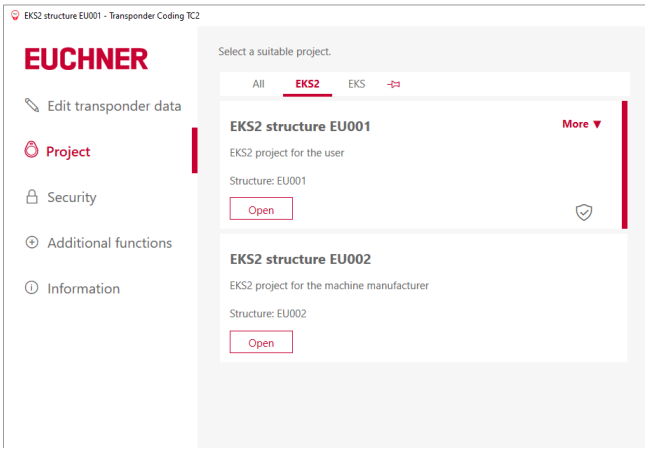
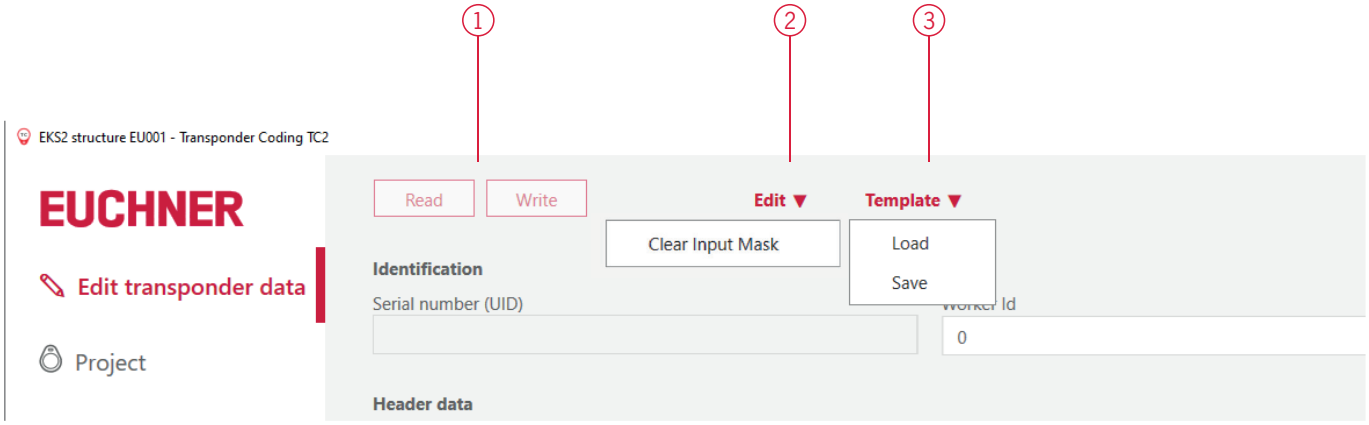


Fig. 2: Navigation area, EKS2 projects

➡ Load the corresponding hex/ASCII editor or an input mask using the *Edit transponder data* menu item. The transponder data can be edited.

5. Editing transponder data

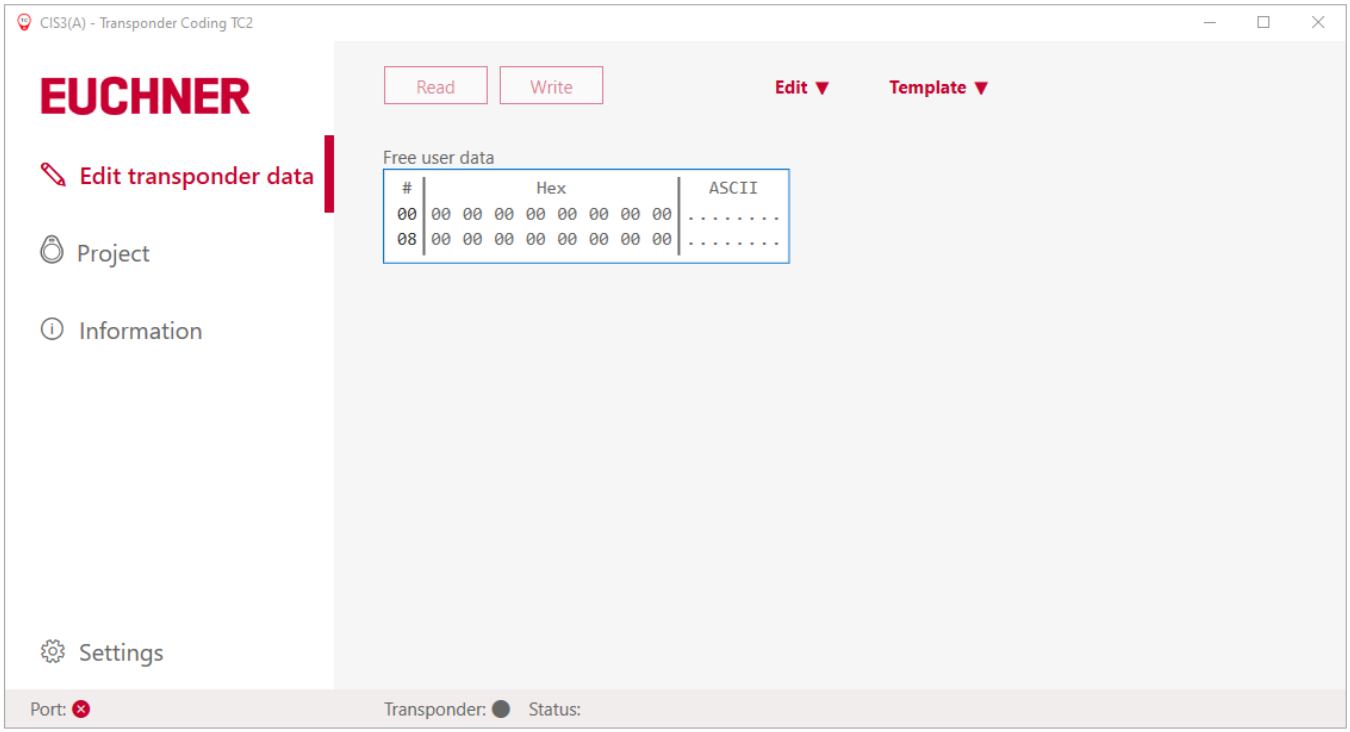
The following options are available for editing the transponder data:



1	**Transponder data** Prerequisite: a transponder is located in the read/write station's actuating range.	
	Read	The data of the transponder are read.
	Write	The data are written to the transponder.
2	**Edit**	
	Clear Input Mask	All fields are cleared.
3	**Template**	
	Load	The most recently saved template is loaded.
	Save	The data are saved as a template. This can simplify the following tasks: › Writing additional transponders with the same characteristics. › Writing several transponders with similar characteristics. It is only ever possible to save the data currently displayed as a template. One template can be saved per project.

The transponder's unique serial number (UID – unique identifier) is factory defined and cannot be edited.

A hex/ASCII editor corresponding to the selected project is displayed.



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6. Writing transponder

Prerequisites:

- A read/write station is connected.
- The data to be written have been prepared in the corresponding input mask.

1. Bring a transponder into the read/write station's actuating range.

➡ The *Write* button is active.

2. Click the *Write* button.

➡ The data are written to the transponder.

7. Hex/ASCII editor

Edited data or data loaded from a template are displayed in blue in the hex/ASCII editor. The data are displayed in black only after they have been written to the transponder.

Additionally, filling characters can be used to write transponder data uniformly from a defined byte.

The filling characters can be customized as follows:

1. Place the cursor on the corresponding hex field and then click the right mouse button.
2. Click the *Filling characters* button.
3. Enter a hexadecimal value in the dialog window as specified and confirm with *OK*.

➡ The hex fields are filled with the filling character from the cursor position to the end of the programmable character string.

Alternatively, the filling characters can also be adapted under *Advanced settings* in the *Settings* menu item.

8. Managing security settings (only available for EKS2)

A multilayer security concept is used to protect the project and transponder data for EKS2. Each EKS2 project is protected with a project password. In addition, the data written to the transponder with the aid of the Transponder Coding TC2 application software are encrypted using a private user access key.

The project password prevents unauthorized personnel viewing or changing the user access key in the application software. The project password is assigned specifically by the user. If the project password is lost, it is necessary to reset the project, see chapter *8.1. Resetting a project (only available for EKS2) on page 9*.

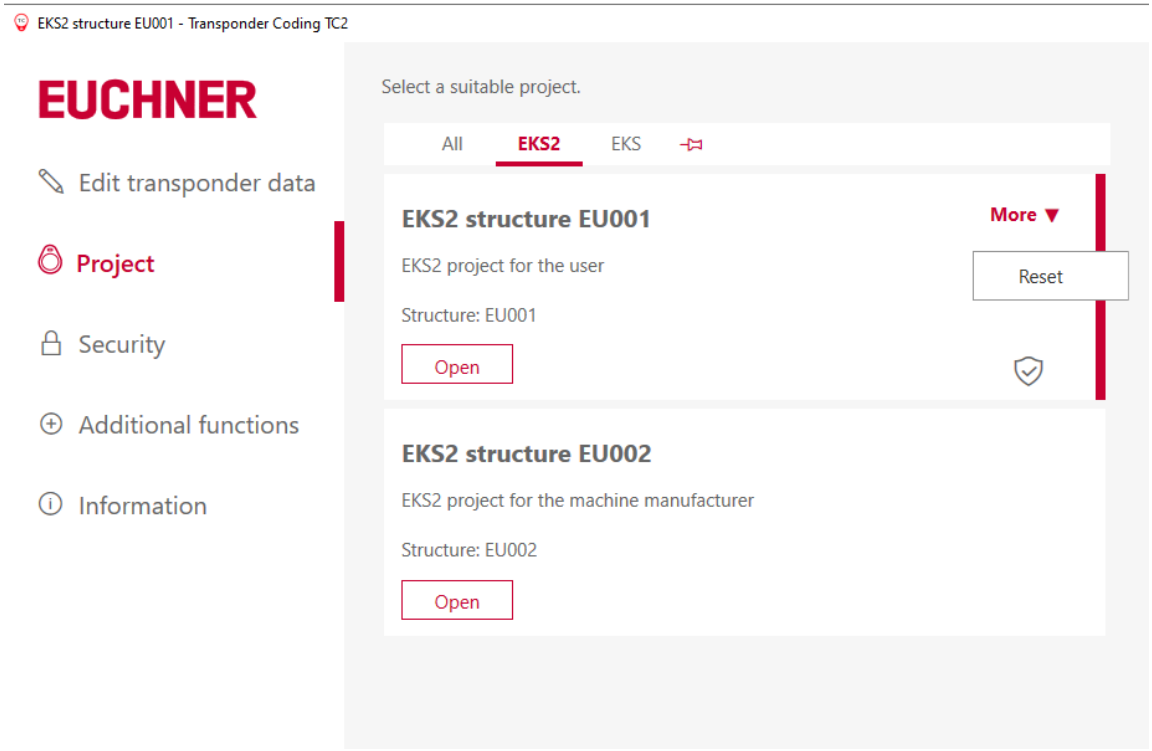
The user access key is generated by a password generator and can be copied for safe keeping.

ⓘ	**Important!** If the user access key is changed by generating the key again, transponders already written can no longer be edited using the related project. For further information, see chapter *8.2. Using transponders after changing the user access key on page 10*.

A public user access key is used for the data area for machine manufacturers; this key can be saved in the control system (PLC). You will find further information in the corresponding application at www.euchner.com.

8.1. Resetting a project (only available for EKS2)

All security settings and templates already saved are lost if you reset a project:



Proceed as follows to be able to continue to use transponders already written:

1. Open again the related project in *Project*.
2. Type the corresponding user access key in *Security* and save.
3. Assign a new project password and save.

➡ It is possible to read and edit transponders already written.

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8.2. Using transponders after changing the user access key

If the user access key is generated again and saved, transponders already written can no longer be edited using the related project.

Proceed as follows to be able to continue to use the transponders already written:

1. Reset transponder to factory settings in *Additional functions*, see chapter *11.1. Factory reset on page 14*.
2. Reset all EKS2 systems in use to factory settings. You will find further information in the operating instructions for the Electronic-Key-System EKS2.
3. Write data to the transponder again.

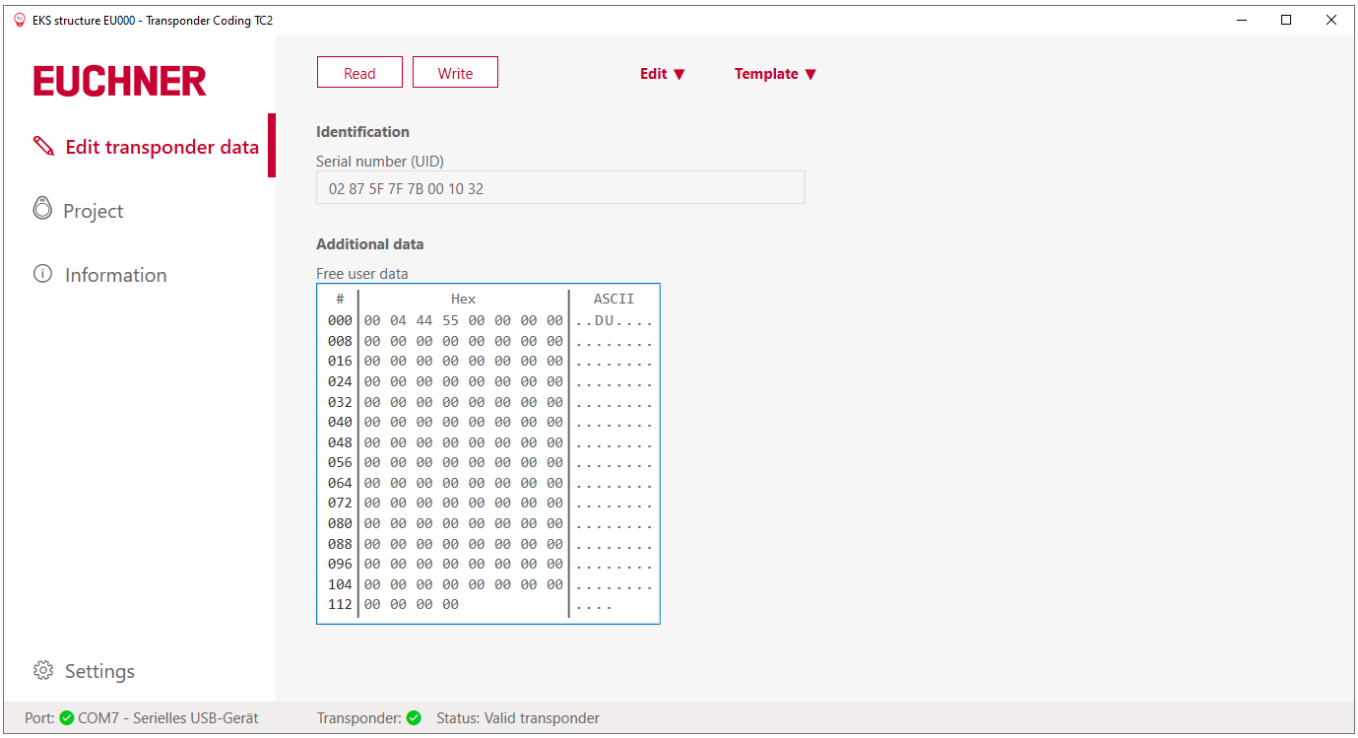
➡ The newly generated user access key is written to the transponder.

4. Teach in the new user access key in the EKS2 system, see operating instructions for the Electronic-Key-System EKS2.

9. Electronic-Key-System EKS project and data structure

9.1. EKS structure EU000

The *EKS structure EU000* project is available for the Electronic-Key-System EKS.



A typical example for the utilization of the freely programmable memory for an EKS with data interface could be as follows:

- Department (here: WT)
- Personnel number (here: 37)
- Reserve block
- Access rights for process 1, e.g. milling (here: 3)
- Access rights for process 2, e.g. turning (here: 5)
- Mode of safe operation MO 0 (here: 0F0F)
- Unused memory (freely available)
- Fixed serial number (here: 02...32)

Byte no.	0	1	2	3	4	5	6	7	8	...	112	113	114	115	116	...	123
Value [hex]	57	54	33	37	00	03	05	0F	0F						02	...	32
Value [ASCII]	W	T	3	7													
Function	Department		Personnel number		Res.	Rights	Rights	Selection of operating mode		Freely available					Serial number		

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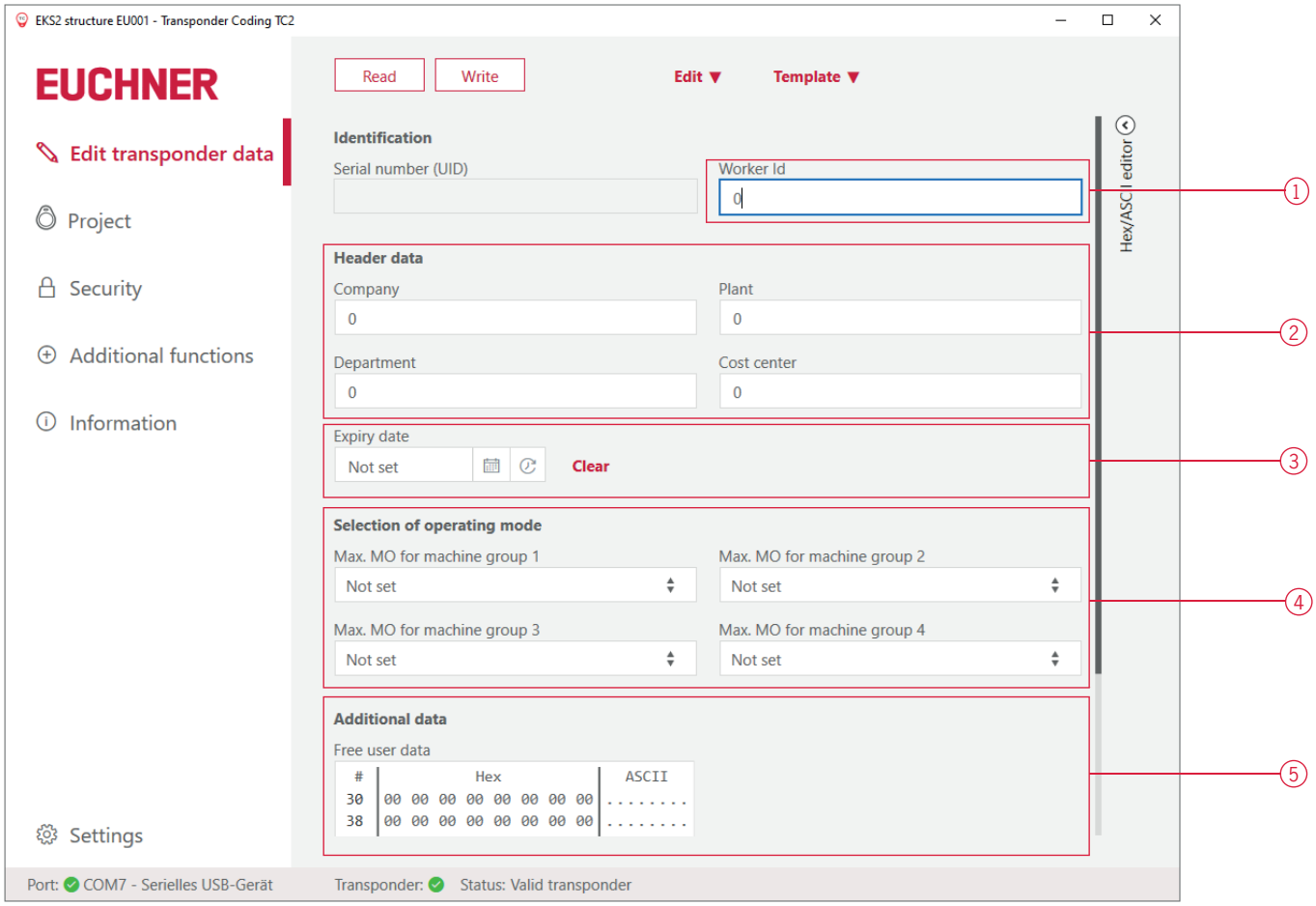
10. Electronic-Key-System EKS2 project and data structure

10.1. EKS2 structure EU001

The *EKS structure EU001* project is available to the user for the Electronic-Key-System EKS2. It contains a data structure with pre-defined functions and a corresponding input mask.

In EKS2 structure EU001, the validity of the transponder can be checked in up to four hierarchical levels. The operating mode can be specified for a maximum of four machine groups.

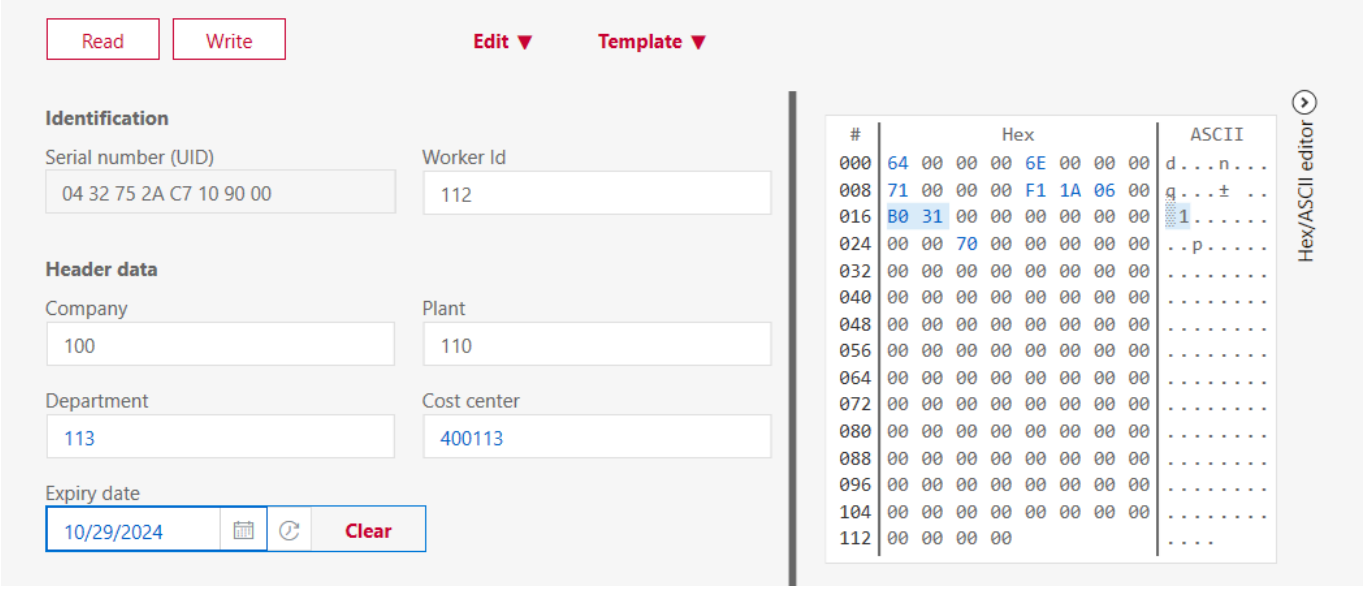


1	Personnel number
2	Area where the transponder is to apply. A descending hierarchical order applies to the *Company*, *Plant*, *Department*, *Cost center* fields.
3	Expiry date The expiry date can be set with the aid of the calendar, by entering the number of days or manually.
4	Selection of operating mode Individual machines can be combined into up to four groups. An operating mode can be assigned to each group.
5	Additional data A further 86 bytes are available for use as required, e.g. for additional authorizations.

The evaluation of the values set here is specified in the Electronic-Key-System EKS2. You will find further information in the operating instructions for the Electronic-Key-System EKS2.

An invalid entry is marked with a red border.

The data structure in the hex/ASCII table is shown in the *Hex/ASCII editor* sidebar window on the right:



As you edit the fields, the corresponding bytes in the Hex/ASCII editor are displayed with a light-blue background.

10.2. EKS2 structure EU002 (only for machine manufacturers)

The *EKS structure EU002* project is available to the machine manufacturer for the Electronic-Key-System EKS2.

You will find further information in the corresponding application at www.euchner.com.

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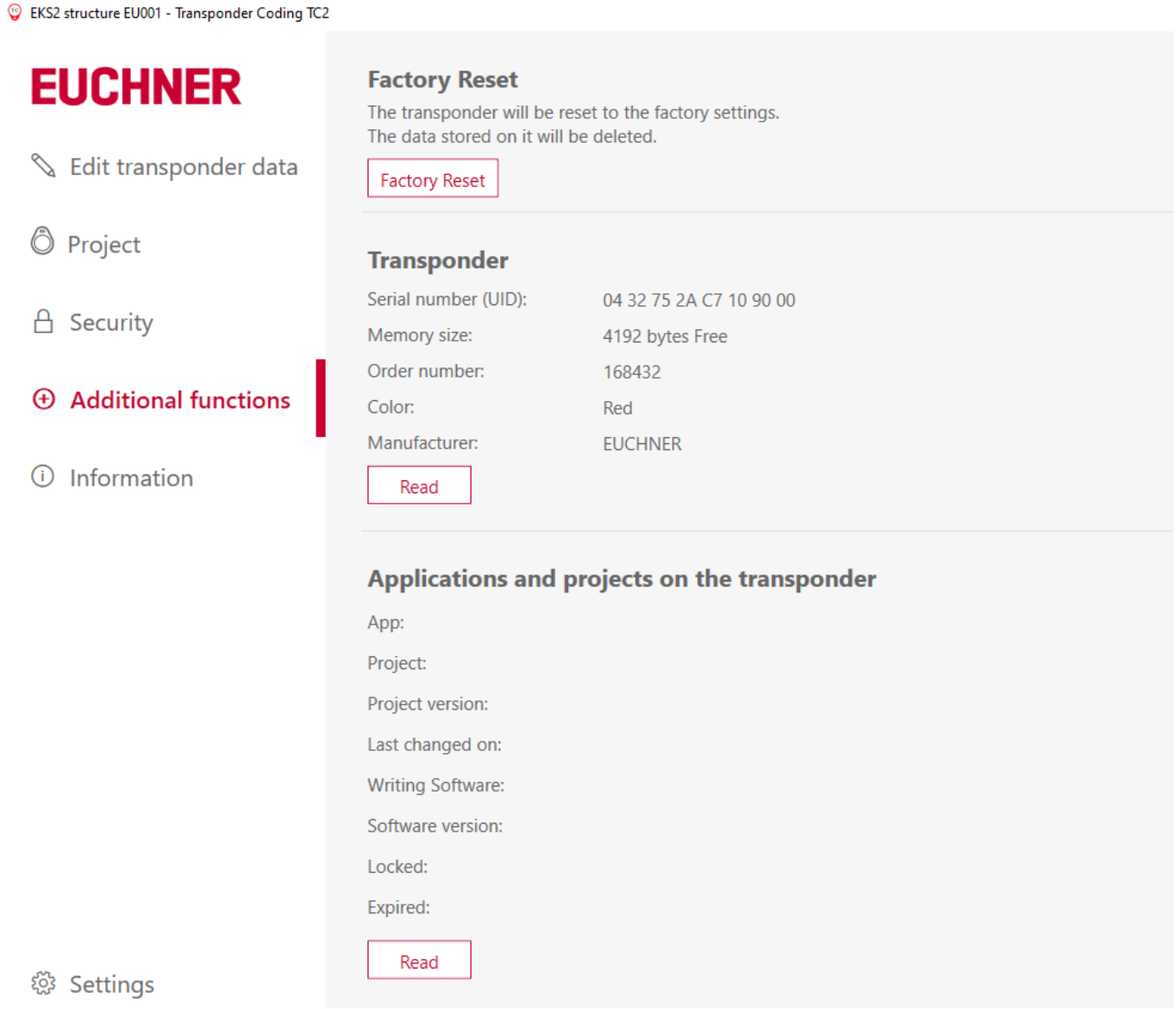
11. Additional functions (only available for EKS2)

In *Additional functions*, transponders can be reset to the factory settings; it is also possible to read their properties and the projects saved on them.

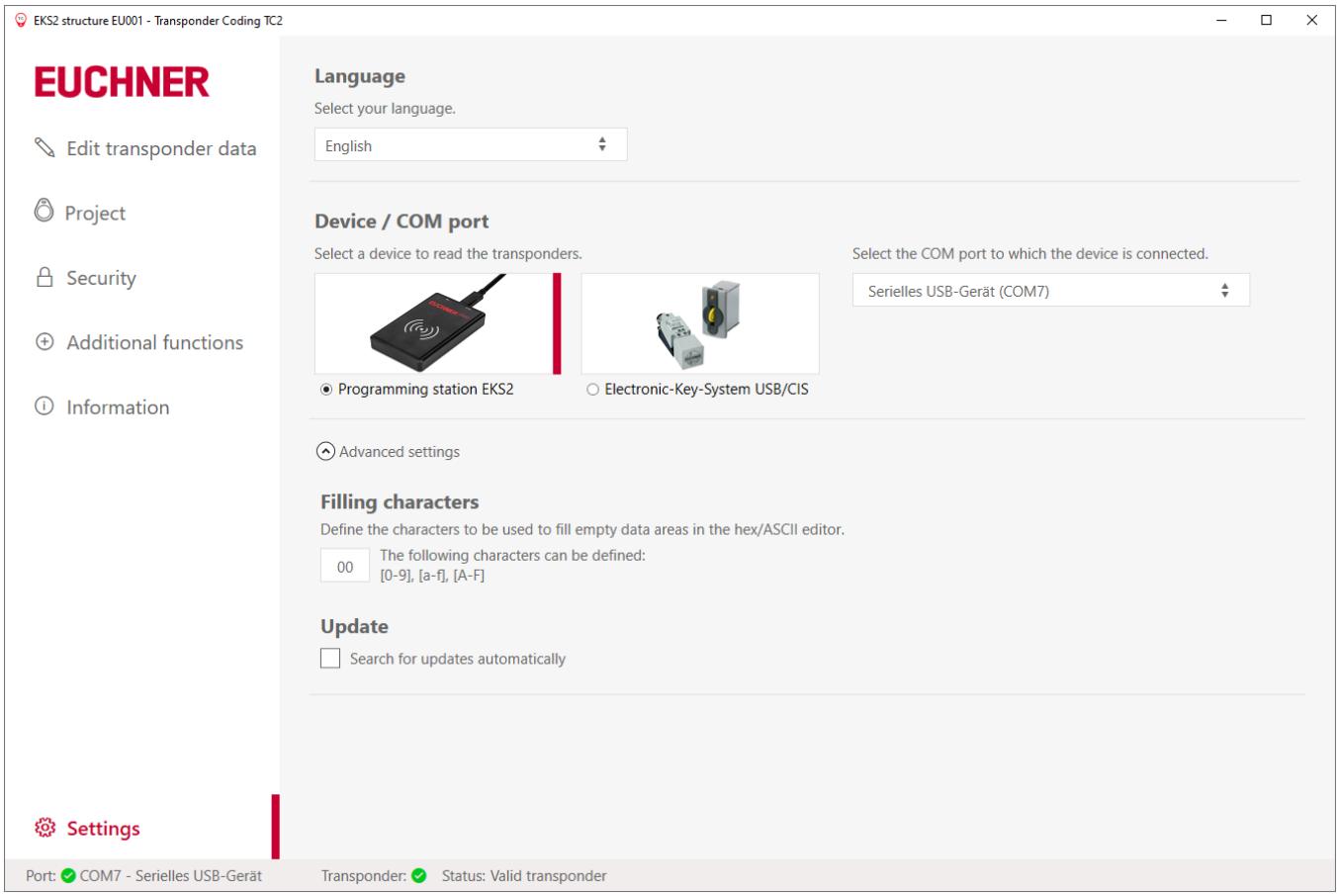


11.1. Factory reset

Use *Factory Reset* to reset a transponder to the factory settings. The data saved are deleted and new transponder data or a new project can be written to the transponder.

12. Changing settings

The language, device and COM port can be selected in *Settings* in the navigation area.



The following configurations can be carried out in the *Advanced settings* drop-down menu:

- Define filling character (see chapter *7. Hex/ASCII editor on page 8)*
- Search for updates automatically (see chapter *13. Updating software and firmware on page 16*)

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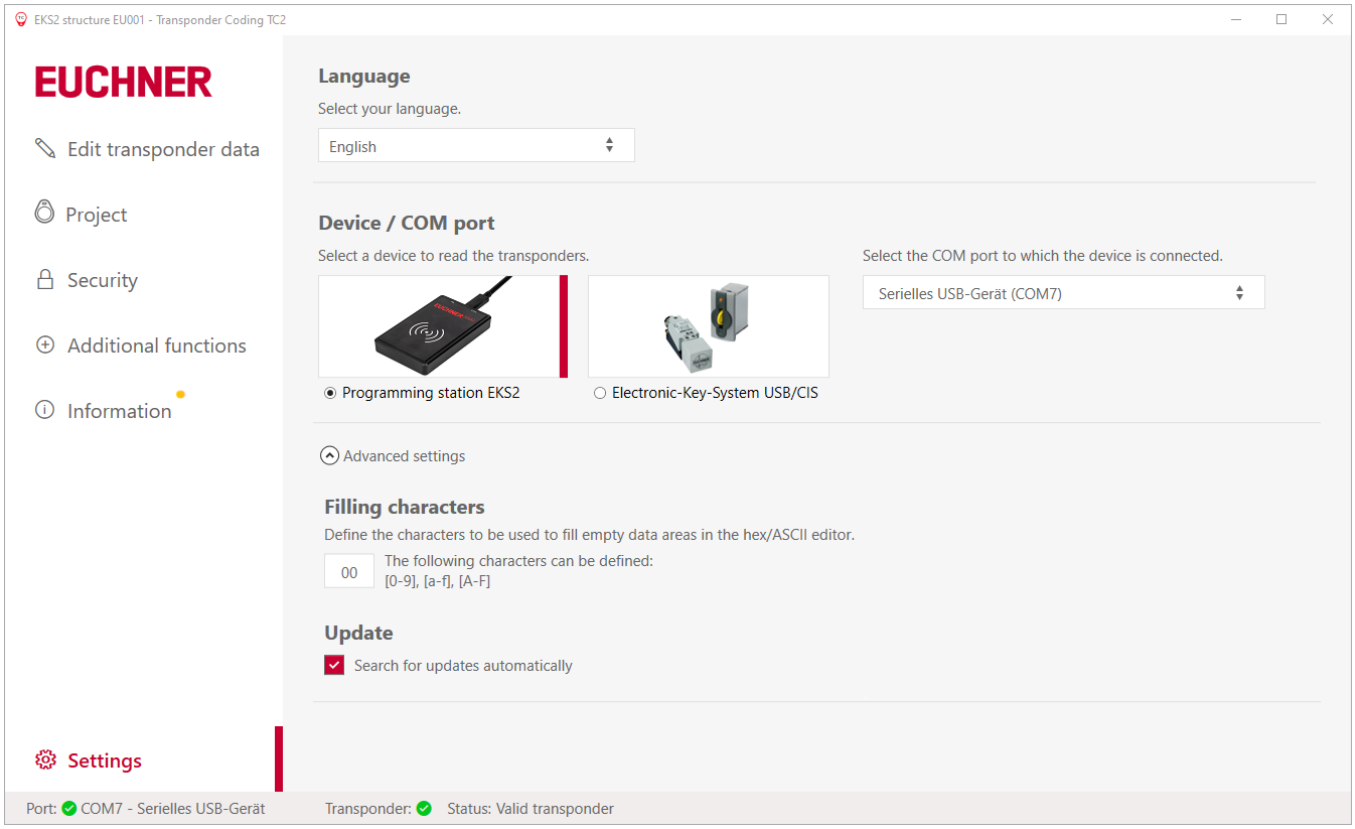
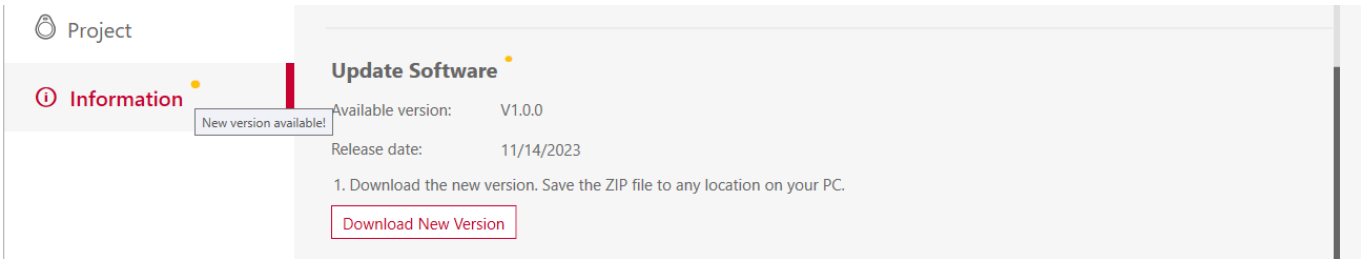
13. Updating software and firmware

13.1. Updating Transponder Coding TC2

1. Activate “Search for updates automatically” under *Update* in the *Settings* menu item in the navigation area:



➡ A yellow dot will appear next to the *Information* menu item when a new update becomes available:



2. Click the *Download New Version* button in the *Information* menu item.

➡ A ZIP file is downloaded.

3. Click the *Start Transponder Coding 2 update* button.
4. Select the ZIP file.

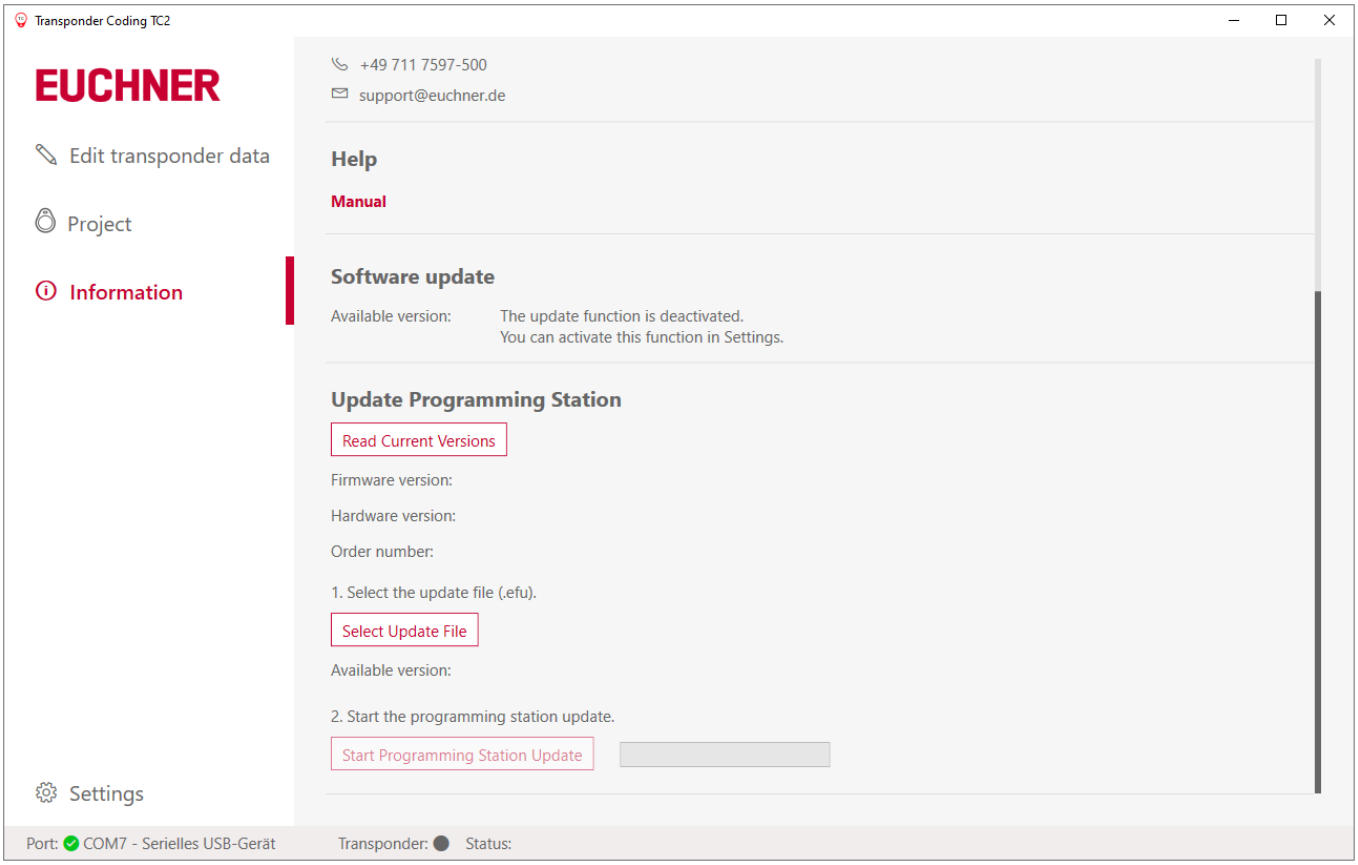
➡ The application is closed.

➡ The Windows input prompt opens automatically.

➡ Once the update is complete, the application will open again automatically.

13.2. Updating EKS2 programming station firmware

With the aid of the Transponder Coding TC2 application software, it is also possible to update the firmware in the EKS2 programming station.



1. Click the *Read Current Versions* button.
2. Download the ZIP file.
3. Click *Select Update File* and select the new .efu file in the directory where it is saved.
4. Click *Start Programming Station Update*.

➡ The new firmware for the programming station is installed.

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14. FAQ - Frequently Asked Questions

14.1. For what is the project password required?

The project password is required:

- to display the current user access key
- to generate a new user access key, see chapter *8. Managing security settings (only available for EKS2) on page 9*

It is not required to edit the transponder data.

14.2. Can I assign a new project password without changing the user access key?

The project password is independent of the user access key. If it is changed, there is no effect on the user access key.

14.3. I have changed the user access key. Can I continue to use transponders already written in my project?

No, that is not possible. Transponders already written and the EKS2 systems in use must be reset to the factory settings.

You will find further information in chapter *8.2. Using transponders after changing the user access key on page 10.*

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Edition:
MAN20001680-02-08/24
Title:
Software Manual
Transponder Coding TC2
(translation of the original operating instructions)