

Overview of EKS applications



Contents

| | |
|---|---|
| General..... | 2 |
| Overview of applications..... | 2 |
| AP000169-1 – Definition of the Electronic-Key structure on an EKS Electronic-Key..... | 2 |
| AP000169-2 – Setting up the EKM software as a programming station | 2 |
| AP000169-3 – EKS Profibus on Siemens S7-300 – reading in EKS Electronic-Keys..... | 2 |
| AP000169-4 – EKS Profinet on Siemens S7-300 – reading in EKS Electronic-Keys | 2 |
| AP000169-5 – EKS on Siemens S7-300 – checking KEYCRC | 3 |
| AP000169-6 – Information for machine manufacturers for use of the EKS with a data interface | 3 |
| AP000169-7 – EKS FSA on Siemens S7-300 – operating mode selection | 3 |
| Important note – please observe carefully!..... | 4 |

General

This application series provides examples showing the use of the EKM in combination with an EKS. The individual examples follow on from each other. The application for calculating the CRC (AP000169-5...) therefore uses the same structure as used for setting up the EKM as a programming station, for example.

Overview of applications

AP000169-1 – Definition of the Electronic-Key structure on an EKS Electronic-Key

The basic consideration for the use of the EKS lies in the structure of the Electronic-Key. General information is provided about this topic and about the assignment of different user rights in the EKM.

AP000169-2 – Setting up the EKM software as a programming station

The creation of a database is described based on a sample Electronic-Key structure. A screen layout is created for this purpose, so that the data can be written to EKS Electronic-Keys.

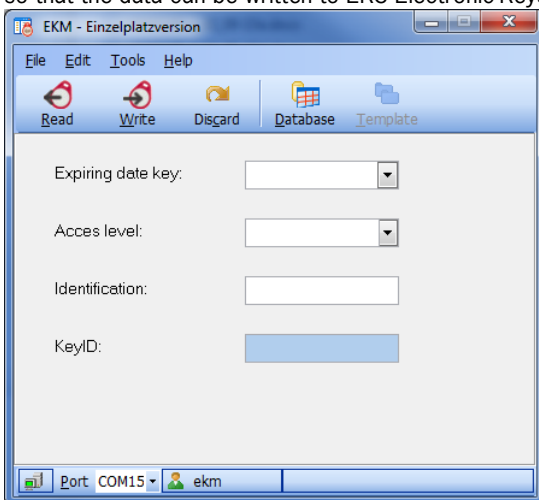


Figure 1

A KeyCRC is set up as copy protection for the Electronic-Keys.

AP000169-3 – EKS Profibus on Siemens S7-300 – reading in EKS Electronic-Keys

The Electronic-Key structure from AP000169-2 is used.

All steps for reading in an EKS Electronic-Key in an EKS Profibus connected to an S7-300 are described. The read-in data are then available in data block DB1. Data from the upper Electronic-Key range, including the KeyID, are read.

AP000169-4 – EKS Profinet on Siemens S7-300 – reading in EKS Electronic-Keys

All steps for reading in an EKS Electronic-Key in an EKS Profinet connected to an S7-300 are described. The read-in data are then available in data block DB1. Data from the upper Electronic-Key range, including the KeyID, are read. Data block DB1 is not identical to data block DB1 from application AP000169-3.

AP000169-5 – EKS on Siemens S7-300 – checking KEYCRC

The data read in from the Electronic-Key are in DB1. DB1 corresponds to the example AP000169-3 (EKS Profibus). Deviations for data block DB1 as used in AP000169-4 (Profinet) are described.

All individual program sections are described as to how the KeyCRC is calculated for a range with an odd number of user data items. The result indicates whether the data on the Electronic-Key produced the same CRC as the calculation in the PLC.

AP000169-6 – Information for machine manufacturers for use of the EKS with a data interface

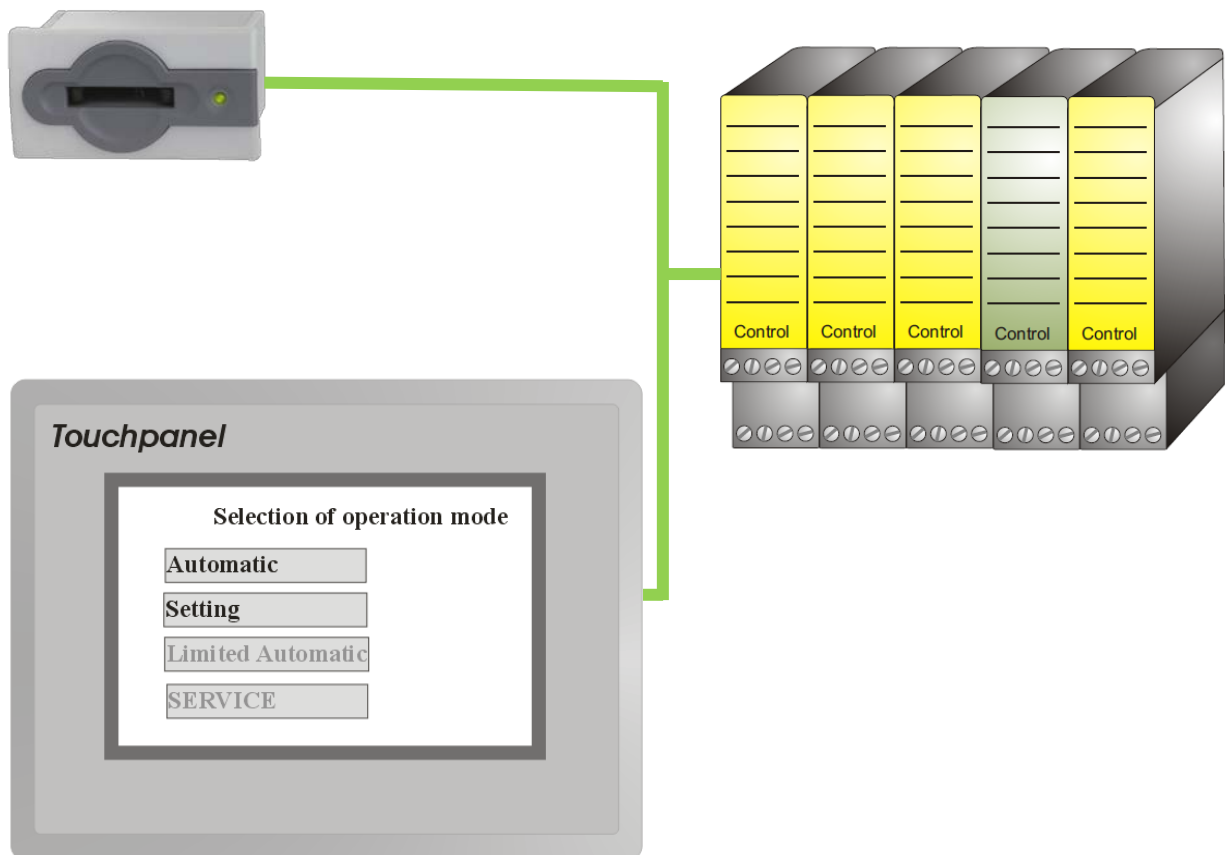
This application includes a sample description that an end customer must provide to a machine and installation manufacturer if it is to use an EKS on a machine to be supplied.

The Electronic-Key structure from AP000169-2 is used.

AP000169-7 – EKS FSA on Siemens S7-300 – operating mode selection

This example permits operating mode selection using a standard user interface, such as a touchscreen or softkeys, in combination with a safe PLC. The application meets the requirements of EN ISO 13849-1 for a Performance Level (PL) for operating mode selection.

The Electronic-Key structure from AP000169-2 is used.



Important note – please observe carefully!

This document is intended for a design engineer who possesses the requisite knowledge in safety engineering and knows the applicable standards, e.g. through training for qualification as a safety engineer. Only with the appropriate qualification is it possible to integrate the introduced example into a complete safety chain.

The example represents only part of a complete safety chain and does not fulfill any safety function on its own. In order to fulfill a safety function, the energy switch-off function for the hazard location and the software within the safety evaluation must also be considered, for example.

The introduced applications are only examples for solving certain safety tasks for protecting safety doors. The examples cannot be comprehensive due to the application-dependent and individual protection goals within a machine/installation.

If questions concerning this example remain open, please contact us directly.

In accordance with Machinery Directive 2006/42/EC, the design engineer of a machine or installation is obligated to perform a risk assessment and take measures to reduce the risk. When doing this, the engineer must comply with the applicable national and international standards. Standards generally represent the current state of the art. Therefore, the design engineer should continuously inform himself about changes in the standards and adapt his considerations to them. Relevant standards include EN ISO 13849 and EN 62061. This application must be regarded only as assistance for the considerations about safety measures.

The design engineer of a machine/installation is obligated to assess the safety technology itself. The examples must not be used for assessment, because only a small excerpt of a complete safety function was considered in terms of safety engineering here.

In order to be able to use the safety switch applications correctly on safety doors, it is indispensable to observe the standards EN ISO 13849-1, EN ISO 14119 and all relevant C-standards for the respective machine type. Under no circumstances does this document replace the engineer's own risk assessment, and it cannot serve as the basis for a fault assessment.

Particularly in case of fault exclusion, it must be noted that this can be performed only by the design engineer of a machine or installation and requires a reason. General fault exclusion is not possible. More information about fault exclusion can be found in EN ISO 13849-2.

Changes to products or within assemblies from third-party suppliers used in this example can lead to the function no longer being ensured or the safety assessment having to be adapted. In any event, the information in the operating instructions on the part of EUCHNER, as well as on the part of third-party suppliers, must be used as the basis before this application is integrated into an overall safety function. If contradictions should arise between the operating instructions and this document, please contact us directly.

Use of brand names and company names

All brand names and company names stated are the property of the related manufacturer. They are used only for the clear identification of compatible peripheral devices and operating environments in relation to our products.