Electronic-Key-System

EKS.

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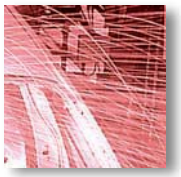
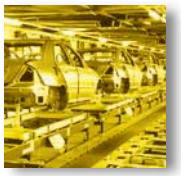
Emil Euchner, the promoter of the enterprise and inventor of the multiple limit switch, around 1928





Around the world – the Swabian specialists for monitoring various motions in the field of machine and industrial manufacturing.

EUCHNER's history began in 1940 with the establishment of an engineering office by Emil Euchner. Since that time, EUCHNER has been involved in the design and development of switching devices for controlling a wide variety of motions in the field of machine and industrial manufacturing. 1953 Emil Euchner founded EUCHNER + Co., a milestone in the company's history. In 1952, he developed the first multiple limit switch – to this day a symbol of the enterprising spirit of this family-owned company.

Automation – Safety – ManMachine

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies for offering the right solution for special requirements - regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector. EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

Quality, reliability, precision

Quality, reliability and precision are the hallmarks of our corporate philosophy. Terms and values to which we feel totally committed. At EUCHNER, quality means that all our employees take personal responsibility for the company as a whole and in particular, for their own area of responsibility. Individual endeavour and carrying out tasks flawlessly result in products which are totally in line with the customers' needs and the requirements of the market. After all: Our customers and their needs are the focus of all our efforts. Through efficient and effective use of resources, the promotion of personal initiative, and courage in finding unusual solutions to the benefit of our customers, we ensure a high level of customer satisfaction. We familiarize ourselves with their needs, requirements and products and we learn from the experiences of our customers' customers.

EUCHNER – More than safety.

Quality – made by EUCHNER

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Electronic-Key-System EKS

Application

With the **Electronic-Key-System EKS**, it's no problem if a password is forgotten. This system provides access control on PCs and control units.

Nowadays access rights are usually controlled by the issue of passwords. In practice, however, this often leads to unauthorized system interventions.

This is where the Electronic-Key-System can be put to optimal use: In comparison to the issue of a password, considerably more responsibility is assigned to the owner of an Electronic-Key.

This provides **protection against unauthorized access** to operation and visualization systems. It is often the case that only specific persons have permission to change the system parameters of critical systems. This is the ideal area of application for EKS.

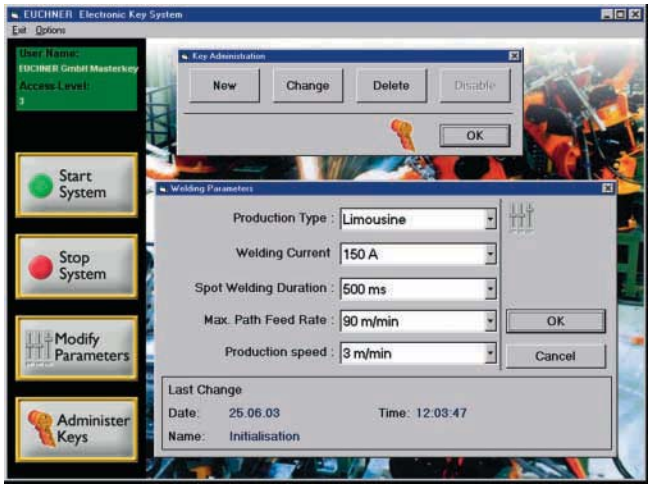
In a typical application, the user has a **specific level of access rights** via the Electronic-Key.

An example:

- Level 1: Start and stop installation
- Level 2: Change process parameters
- Level 3: Key management

The keys are available in the colours black, blue and red with identical functionality. The various levels of rights, for example, can thus be visualized.

Management of the key can also take place at a separate workplace.



System Overview

In principle EKS comprises two components: an Electronic-Key and the matching Electronic-Key adapter.

Integrated into the Electronic-Key in the form of a robust tag are a memory chip and an antenna (transponder). This is in fact an **inductive identification system** with the following features:

- Carrier frequency 125 kHz
- Transponder **without battery**

For operation, the Electronic-Key is inserted into the Electronic-Key adapter and is held by a spring clip. The power supply for the transponder and the data are transferred **without contacts** between the Electronic-Key adapter and the Electronic-Key.

The data carrier in the Electronic-Key is equipped with a combined memory:

- 116 bytes E^2PROM (programmable) plus an additional 8 bytes ROM (serial number)

In principle, the Electronic-Key adapter is a **read/write system with integrated evaluation unit and interface**. Device variants with the following interfaces are available for system connection:

- Serial RS232/RS422, switchable
- Profibus DP

The Electronic-Key adapter with integrated serial interface is suitable for connection to the PC or to the PLC via a serial interface card. Data communication proceeds in accordance with transfer protocol 3964R.

The Electronic-Key adapter with integrated Profibus DP interface is connected to the fieldbus via a standard Profibus cable as a subscriber. The bus address is simply set at the Electronic-Key adapter and the GSD file is loaded into the bus master.

All the Advantages at a Glance

Connection of the EKS with serial interface to the user's PC application is supported by an optionally available **ActiveX module** (effective if user programs have ActiveX capability on MS Windows®). EKS can thus be used in conjunction with process visualization.

Commissioning and **system integration is much simpler and easier in the case of the EKS with Profibus interface**. The EKS is integrated via the GSD file and the data is available in the input section of the bus master immediately after connection. With the fieldbus variant, the EKS can also be used remotely from the controller, e.g. at assembly workplaces.

The programming of the application, the integration in an overall system and the assignment and utilization of the freely programmable memory in the Electronic-Key is organized by the user.

With EKS, a **very fast log-on** is possible without the use of a password even on systems without a keyboard. In addition, it is sensible to program the application so that the system is accessible only as long as the Electronic-Key is positioned in the Electronic-Key adapter. The log-off is then linked automatically to withdrawal of the Electronic-Key.

A further benefit lies in the **flexibility of the system**:

- Easy assignment and changing of the level of access rights
- Access for lost keys can be disabled
- Easy identification of mixed-up keys
- Fast assignment of additional keys

For example, the name of the user and access level in plain text can be programmed in by means of the read/write key. With regard to **quality assurance** in accordance with ISO 9000, the logging of accesses and changes is possible when using EKS. EKS can also serve as an electronic substitute for conventional quality cards.

Due to the contactless transfer of data, it was possible to design the Electronic-Key adapter from the access side with the high **degree of protection IP 67, i.e. suitable for industry**. The Electronic-Key adapter can be installed in any control panel with a standard cut-out of 33 mm x 68 mm according to DIN 43700. It is fastened by means of screw clamp elements from the rear side of the panel so that unauthorized manipulation from the operator side can be excluded.

Documentation and Software

Electronic-Key adapter with serial interface:

- **Manual Electronic-Key-System for Electronic-Key Adapter EKS-A-ISX...**
  Order No. 088 796

Detailed documentation on connection, including a description of the command sequence based on protocol 3964R.

- **ActiveX Modules**
  Order No. 084 708

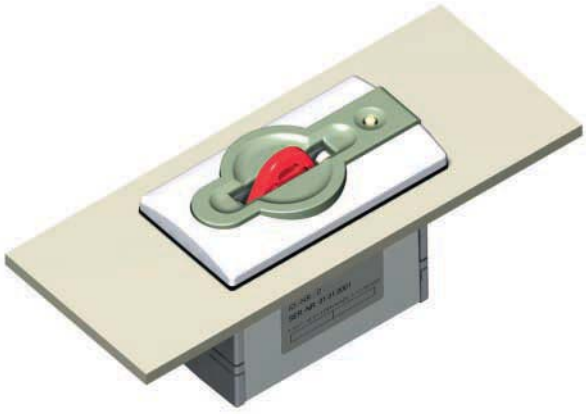
Software for integration into user software that supports ActiveX.

- **Manual ActiveX Module**
  Order No. 084 709

Detailed documentation on use of the software.

Electronic-Key adapter with Profibus DP interface:

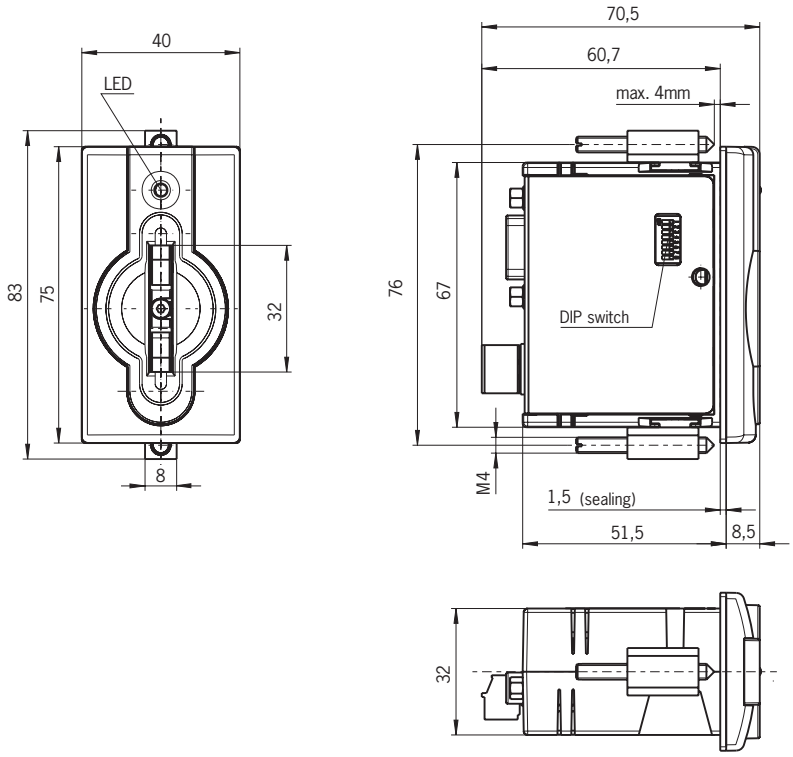
- **Manual Electronic-Key-System for Electronic-Key Adapter EKS-A-IDX...**
  Order No. 092 009
- **GSD file**
  Order No. 092 054



Electronic-Key Adapter with Serial Interface

Dimension drawing

Dimensions in mm



Technical data

General parameters	Value			Unit
	min.	typ.	max.	
Housing	plastic (PA 6 GF30 grey)			
Degree of protection according to EN 60529	IP 67 in mounted condition			
Ambient temperature at U_B = DC 24 V	0		+ 55	°C
Mounting cut-out according to DIN 43700	33 x 68			mm
Connection type for power supply	miniature plug connector (3-pin)			
Operating voltage U_B (regulated, residual ripple < 5%)	20	24	28	DC V
Current consumption			100	mA
Interface, data transfer				
Interface to host control	serial RS232 / RS422 (selectable via DIP switch)			
Transfer protocol	3964R			
Baud rate	9.6		28.8	kbaud
	(selectable via DIP switch)			
Data format	1 start bit, 8 data bits, 1 parity bit (even parity), 1 stop bit			
Connection type for serial interface	Sub-D (9-pin)			
Cable length RS232			5	m
Cable length RS422			1000	m
LED display	green: "Power On" (in operation) yellow: "Electronic-Key active" *			

* The LED is lit yellow if an operating Electronic-Key is inserted in the Electronic-Key adapter.

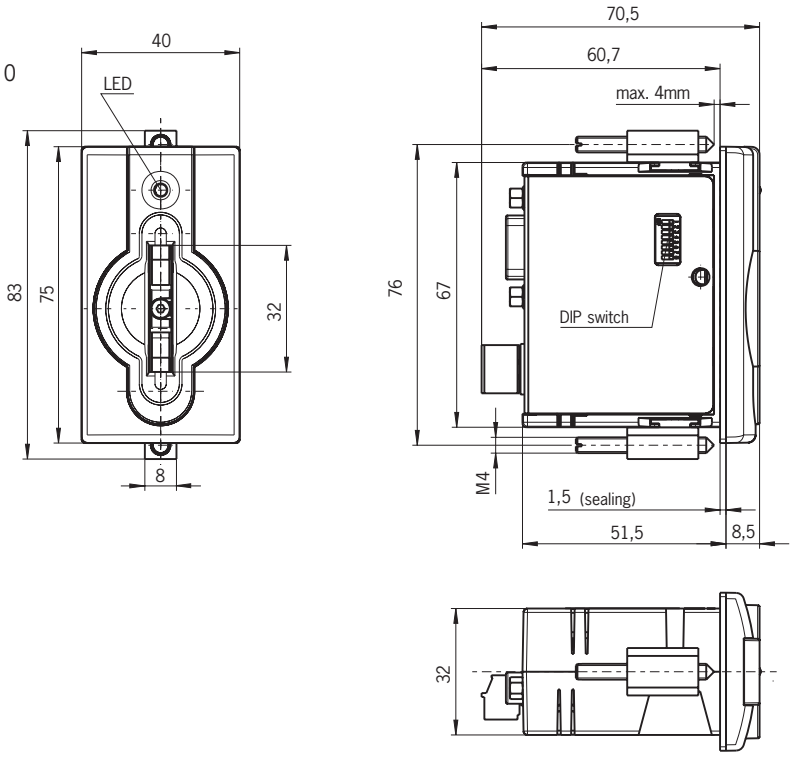
Ordering table

Version	Type designation	Cat. No.
Electronic-Key adapter with serial interface	EKS-A-ISX-G01-ST09/03	084 750

Electronic-Key Adapter with Profibus DP Interface

Dimension drawing

Dimensions in mm



Technical data

General parameters	Value			Unit
	min.	typ.	max.	
Housing	plastic (PA 6 GF30 grey)			
Degree of protection according to EN 60529	IP 67 in mounted condition			
Ambient temperature at U_B = DC 24 V	0		+ 55	°C
Mounting cut-out according to DIN 43700	33 x 68			mm
Connection type for power supply	Miniature plug connector (3-pin)			
Operating voltage U_B (regulated, residual ripple < 5 %)	20	24	28	DC V
Current consumption			150	mA
Interface, data transfer				
Interface to host control	RS485 (address selectable via DIP switch)			
Address range	0 ... 126			
Transfer protocol	Profibus DP according to EN 50170			
Baud rate	9.6/19.2/45.45/93.75/187.5/500 1.5/3/6/12			kbps Mbps
Connection type for Profibus DP	Sub-D (9-pin)			
Cable length max.	100 ... 1200 according to Profibus DP, depending on baud rate			m
LED display	green: "Ready" (in operation) yellow: "Electronic-Key active" * red: "Error"			

* The LED is lit yellow if an operating Electronic-Key is inserted in the Electronic-Key adapter.

Ordering table

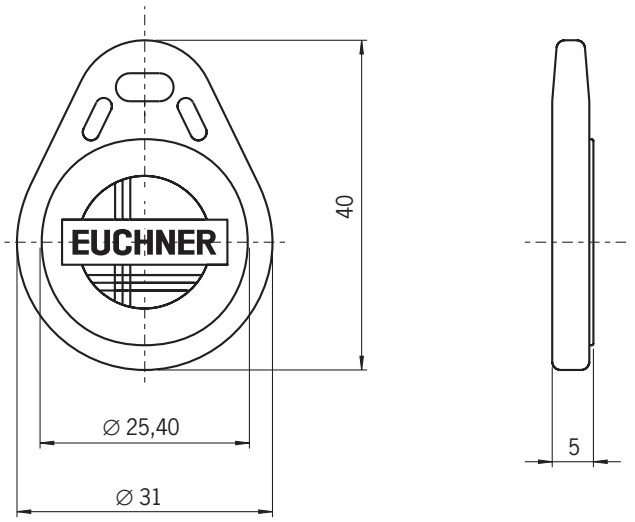
Version	Type designation	Cat. No.
Electronic-Key adapter with Profibus DP interface	EKS-A-IDX-G01-ST09/03	084 800

Electronic-Key Read/Write

- **Memory 116 bytes E²PROM (programmable) plus 8 bytes ROM (serial number)**

Dimension drawing

Dimensions in mm



Special features

- The Electronic-Key contains a unique 8-byte serial number. This number is lasered-in during the production process of the Electronic-Keys and is stored absolutely indestructible. The serial number is used for secure distinction of every single Electronic-Key.

Technical data

General parameters	Value			Unit
	min.	typ.	max.	
Memory capacity (available for programming)		116		byte
Power supply	inductive via Electronic-Key adapter			
Housing	plastic polycarbonate			
Degree of protection according to EN 60529	IP 67			
Ambient temperature	- 20		+ 60	°C
Number of read cycles	not limited			
Number of write cycles	100,000			cycles
Data retention time (at T = + 55°C)	10			years
Memory structure				
Write	only possible in 4-byte packages			
Read	possible byte by byte			

Ordering table

Version	Colour	Type designation	Cat. No.
Electronic-Key Read/write with 116 bytes read/write memory	red	EKS-A-K1RDWT32-EU	077 859
	black	EKS-A-K1BKWT32-EU	084 735
	blue	EKS-A-K1BUWT32-EU	091 045

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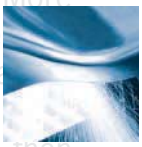

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