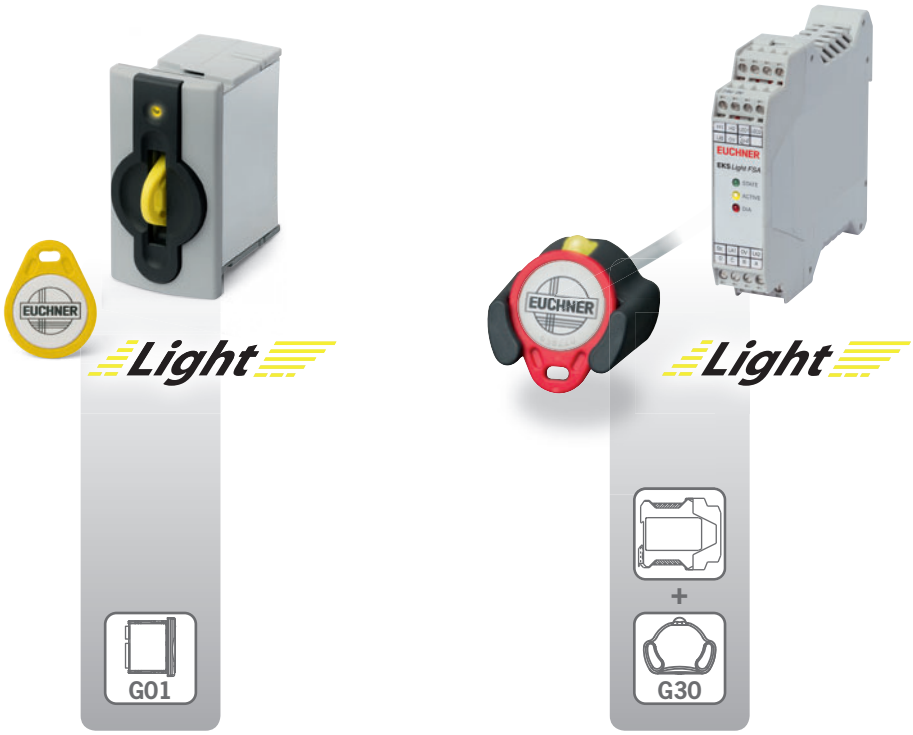
EKS Light

»Access the easy way...«

- Electronic access control
- Simple connection
- Simple communication, 4-bit output

EKS Light



Access the easy way...

A simple connection concept and rapid and thus economical integration into the control technology were at the forefront in the development of EKS *Light*. Compatibility with the existing EKS with data interface through the use of the same Electronic-Keys was also taken into account.

- Electronic access control
- Simple connection
- Simple communication, 4-bit output
- Very simple use

EKS *Light* permits simple, controlled access to individual machines, entire installations or other facilities. With EKS *Light*, the device directly identifies a user by means of the user's Electronic-Key. A control system is not necessary for this check. If an authorized user was detected, an access level is output with which the user receives a certain authorization. The control system derives the access rights to machine functions via control system programming by the system integrator.

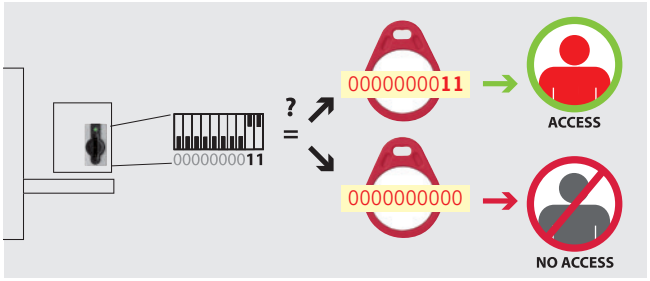
And this is how it works

EKS *Light* is a read-only system with evaluation electronics and interface.

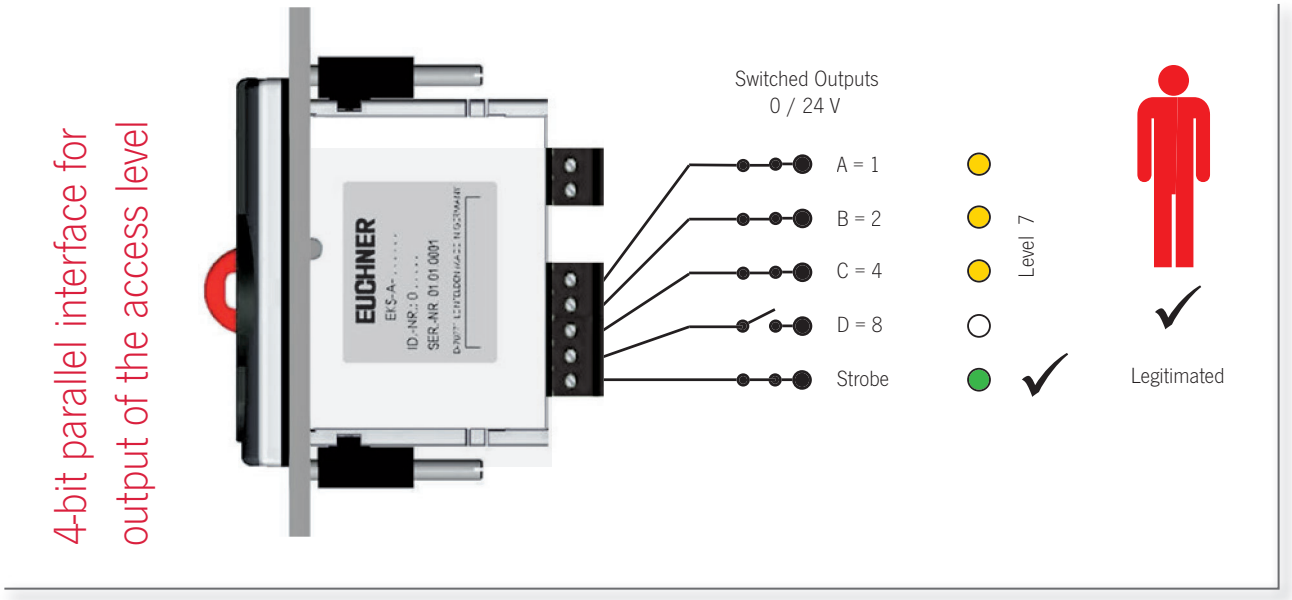
After the Electronic-Key is placed, the Electronic-Key's data are evaluated within the device as the first step, which permits automatic user recognition without the aid of the control system.

Once the internal check of the data integrity is complete, an access level is issued. The access level is output via a 4-bit parallel interface. The parallel interface offers the advantage of transparent depiction of the data and therefore simple connection directly to the inputs of a control system or a switching device.

An EKS operating state, an access code, an access level, a checksum (CRC) and a serial number are stored on the Electronic-Key. When an Electronic-Key is placed, the data range relevant for the respective operating state is automatically read from the Electronic-Key into the device, temporarily stored there and evaluated. If an authorized user is recognized via a valid Electronic-Key, the outputs on the device are set to High in accordance with the stored access level values. All outputs are reset to Low when the Electronic-Key is removed.



The device and Electronic-Key are separately parameterized with values that have to match. Parameter assignment to the device is performed very straightforwardly via the DIP switch.



Flexibility through various operating states

The application options for EKS *Light* are diverse, and the flexible concept with its different operating states provides flexibility for planning.

The operating state determines the system function. The operating state defines the scheme according to which automatic Electronic-Key recognition functions and how an access level is issued.

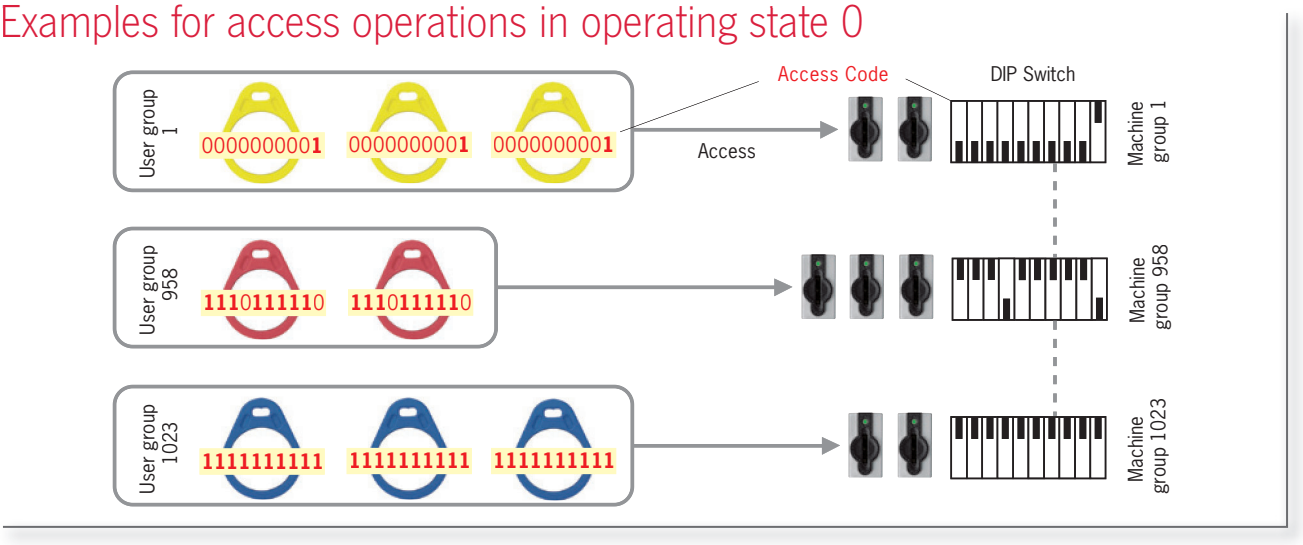
What operating states are available?

Depending on the application, various operating states can be selected. Two different operating states are available for general use:

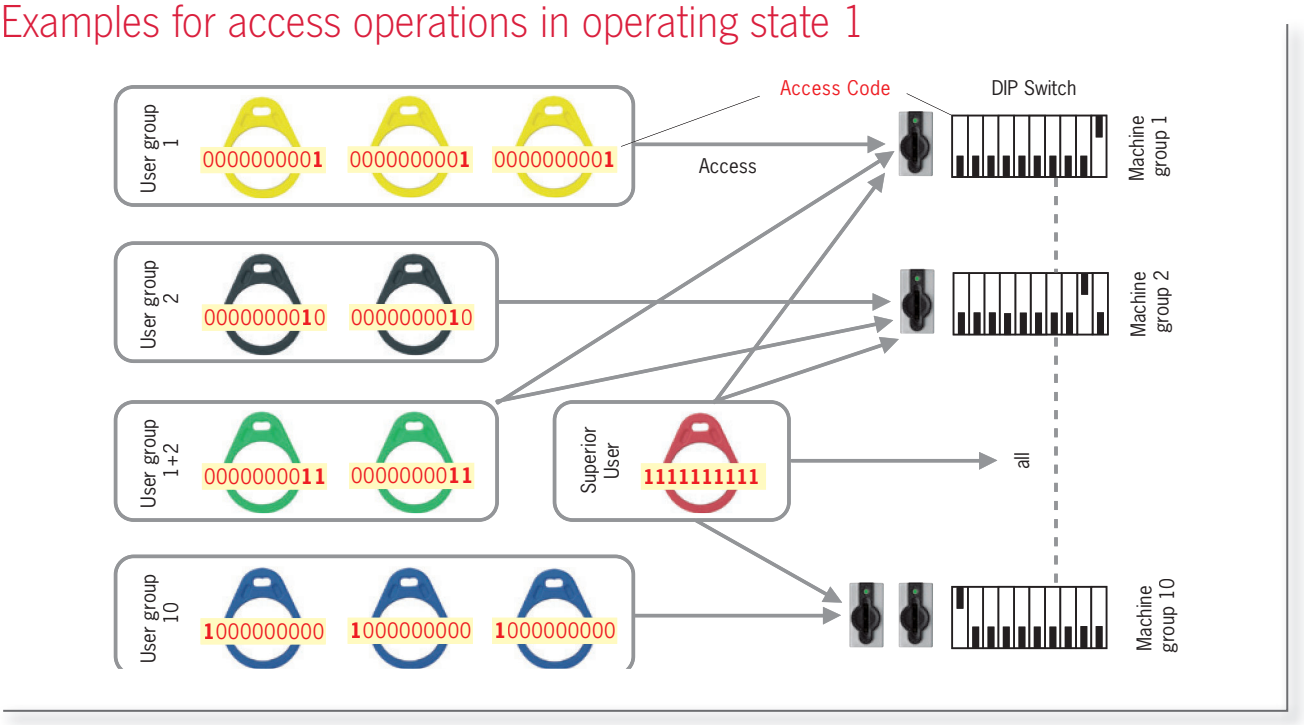
- Operating state 0
  Access is granted when the access codes on the Electronic-Key and DIP switch are an exact match. 1,024 codes are possible in this operating state.

- Operating state 1
  Access is granted when one bit of the access codes on the Electronic-Key and DIP switch matches.

Examples for access operations in operating state 0



Examples for access operations in operating state 1



Electronic-Key-Manager EKM

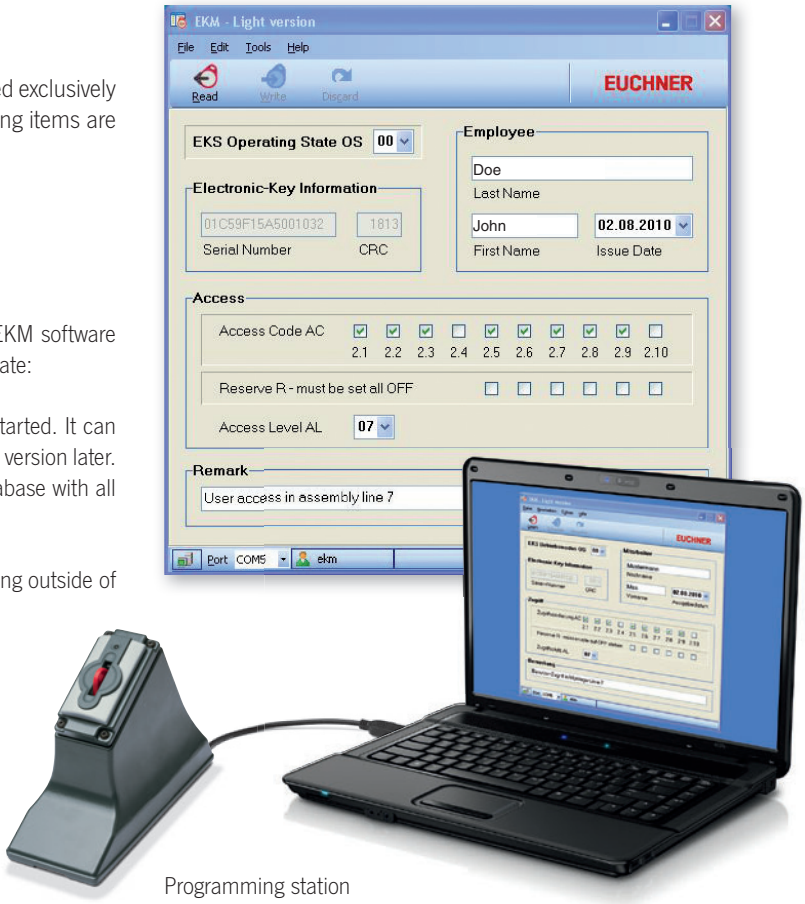
How are parameters assigned to Electronic-Keys?
Parameter assignment for the Electronic-Keys is performed exclusively via a programming station on the PC. At least the following items are required for this purpose:

- A commercially available Windows PC
- An EKS Electronic-Key adapter with USB interface
- The Electronic-Key-Manager EKM *Light software*

Programming takes place via the Electronic-Key-Manager EKM software with an EKS *Light* input screen suitable for the operating state:

The *Light* version of the EKM software is sufficient to get started. It can be upgraded to an EKM individual workstation license or full version later. With this upgrade, you always have an overview of the database with all Electronic-Keys already added.

The cyclic redundancy check routine prevents data tampering outside of the defined software environment.



Programming station
EKS Electronic-Key adapter with USB interface in the desktop case on the PC

Electronic-Key adapter with digital outputs

- **Simple communication, 4-bit output**
- **Additional integration into the safety engineering (optional)**

Details

- Three-color status LED to indicate the operating state
- Read-only system

Notice

- A separate programming station must be set up on a Windows PC to produce functional Electronic-Keys in EKS *Light*.
- The version *FSA* (For Safety Applications) features a switching contact on a second channel. This permits the EKS *FSA* to be used in applications relevant for safety in combination with functionally safe evaluation. The function that can be evaluated in terms of safety engineering is the reliable detection that no Electronic-Key is placed.

Further information

- For information about the Electronic-Key programming required, see p. 16.
- For detailed information and downloads, enter the order number for the product in the search box at www.euchner.com.

Ordering table

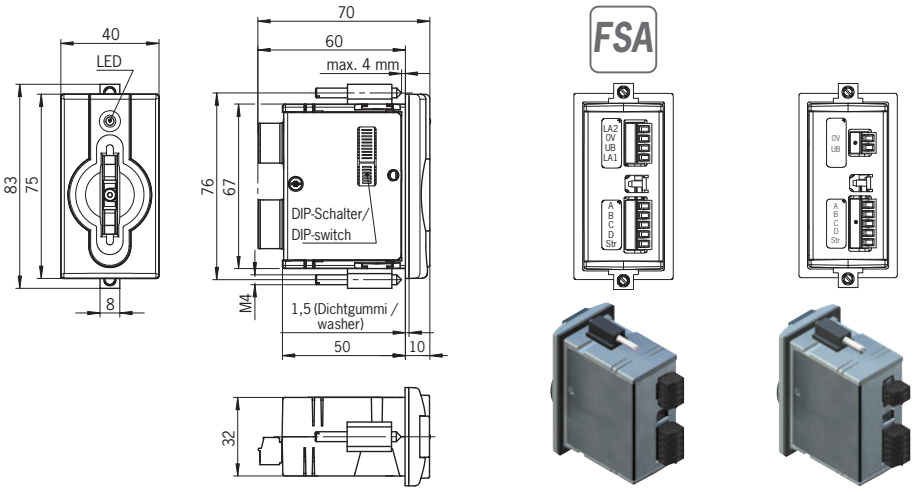
Electronic-Key adapter

Series	Design	Operating state	Option	Order no./item	
EKS-A-IP... Digital outputs 4-bit parallel	G01	0	–	**111230** EKS-A-IPB-G01-ST05/02	For detailed information, enter the order number for the product in the search box at www.euchner.com.
		0...n	–	**109820** EKS-A-IPL-G01-ST05/02	
		0...n	FSA	**112207** EKS-A-IPLA-G01-ST05/04	

Accessories/software

Type	Version	
Electronic-Key read/write		Page 46
Desktop case		Page 48

Dimension drawing



Technical data

General parameters	Value			Unit
	min.	typ.	max.	
Housing	Plastic (PA 6 GF30 gray/black)			
Degree of protection	IP65/IP67 in installed state			
Ambient temperature	- 20		+ 70	°C
Mounting cut-out acc. to DIN IEC 61554	33 x 68			mm
Power supply connection	Plug-in connection terminal, 2-pin, with screw terminal (4-pin for version *FSA*)			
Operating voltage U_B (regulated, residual ripple < 5%)	9	24	28	V DC
Current consumption I_B (without load current)			70	mA
Interface, digital outputs				
Interface to inputs of control system or switching device	4-bit parallel plus strobe, binary coded via High/Low level			
Load current I_A per output	1	10	50	mA
Output voltage U_A (HIGH level) for A, B, C, D, strobe	U_B - 2		U_B	V
Interface connection	Plug-in connection terminal, 5-pin, with screw terminal			
Cable length to control system			50	m
LED indicator	Green: ready (in operation) Yellow: Electronic-Key active [1] Red: fault			
Parameters for floating semiconductor switching contact LA (version *FSA* only)				
Switching contact connection	Plug-in connection terminal, 4-pin, with screw terminal			
Power supply U for load (LA)		24	30	V
Switching current (with overload protection)	1	10	50	mA
Output voltage U_A (LA) in switched state	U x 0.9		U	V
Resistance in switched state		35		ohms
Capacitive load			1	µF
Utilization category acc. to EN IEC 60947-5-2 AC-12 AC-15 DC-12 DC-13	50 mA / 24 V			
Reliability values according to EN ISO 13849-1 (version *FSA* only [2])				
Category (with downstream safe evaluation)	3			
MTTFd	200			years
DC	92			%

1) The LED illuminates yellow if there is a functional Electronic-Key in the Electronic-Key adapter.
2) The values apply to switching contact LA when the Electronic-Key is removed and only to one channel.

Modular interface adapter with digital outputs

- **Use in conjunction with Electronic-Key adapter FHM**
- **Simple communication, 4-bit output**
- **Additional integration into the safety engineering (optional)**

Details

- Three-color status LED to indicate the operating state
- Read-only system
- Maximum cable length of 15 m to the Electronic-Key adapter FHM.

Notice

- A separate programming station must be set up on a Windows PC to produce functional Electronic-Keys in EKS *Light*.
- A complete read station consists of an Electronic-Key adapter FHM and a modular interface adapter.
- The version *FSA* (For Safety Applications) features a switching contact on a second channel. This permits the EKS *FSA* to be used in applications relevant for safety in combination with functionally safe evaluation. The function that can be evaluated in terms of safety engineering is the reliable detection that no Electronic-Key is placed.

Further information

- For information about the Electronic-Key programming required, see p. 16.
- For detailed information and downloads, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Interface adapter

Series	Design	Operating state	Option	Order no./item	
EKS-A-AP... Digital outputs 4-bit parallel		0	–	**113665** EKS-A-APB-G08	For detailed information, enter the order number for the product in the search box at www.euchner.com.
		0...n	–	**113647** EKS-A-APR-G08	
		0...n	FSA	**113645** EKS-A-APRA-G08	

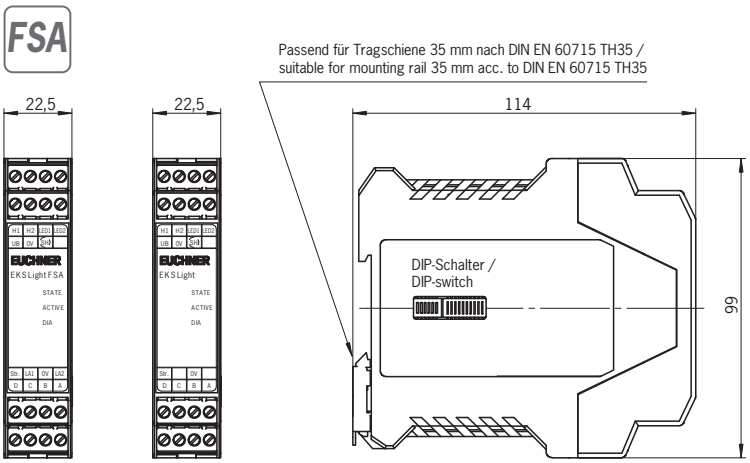
Electronic-Key adapter

Type	Version	
Electronic-Key adapter FHM	G30	Page 22

Accessories/software

Type	Version	
Electronic-Key read/write		Page 46

Dimension drawing



Technical data

General parameters		Value			Unit
		min.	typ.	max.	
Housing		Plastic (PA 6.6, gray)			
Ambient temperature		- 20		+ 55	°C
Mounting		Mounting rail 35 mm according to DIN EN 60715 TH35			
Electronic-Key adapter connection		1 Electronic-Key adapter with max. 15 m connecting cable			
Connection for power supply and Electronic-Key adapter		Plug-in connection terminals, 4-pin, with screw terminal			
Operating voltage U_B (regulated, residual ripple < 5%)		9	24	28	V DC
Current consumption I_B (without load current)				70	mA
Interface, digital outputs					
Interface to inputs of control system or switching device		4-bit parallel plus strobe, binary coded via High/Low level			
Load current I_A per output		1	10	50	mA
Output voltage U_A (HIGH level) for A, B, C, D, strobe		U_B - 2		U_B	V
Interface connection		Plug-in connection terminals, 4-pin, with screw terminal			
Cable length to control system				50	m
LED indicator		Green: ready (in operation) Yellow: Electronic-Key active [1] Red: fault			
Parameters for floating semiconductor switching contact LA (version *FSA* only)					
Switching contact connection		Plug-in connection terminal, 4-pin, with screw terminal			
Power supply U for load (LA)			24	30	V
Switching current (with overload protection)		1	10	50	mA
Output voltage U_A (LA) in switched state		U x 0.9		U	V
Resistance in switched state			35		ohms
Capacitive load				1	µF
Utilization category acc. to EN IEC 60947-5-2	AC-12 AC-15 DC-12 DC-13	50 mA / 24 V			
Reliability values according to EN ISO 13849-1 (version *FSA* only [2])					
Category (with downstream safe evaluation)		3			
MTTFd		200			years
DC		92			%

1) The LED illuminates yellow if there is a functional Electronic-Key in the Electronic-Key adapter.
2) The values apply to switching contact LA when the Electronic-Key is removed and only to one channel.

Electronic-Key adapter FHM modular

- **Use in conjunction with modular interface adapter**

Details

- The Electronic-Key adapter FHM is available with:
  - Cable length 2 m and flying lead

  or
  - Cable length 0.13 m with M8 male plug. This version can be combined with cables measuring 2, 5, 10 and 15 m in length. The cable has an M8 female plug on one end and a flying lead on the other end.

Notice

- Use in conjunction with modular interface adapter.

Further information

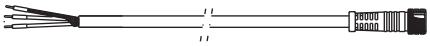
- For detailed information and downloads, enter the order number for the product in the search box at www.euchner.com.

Ordering table

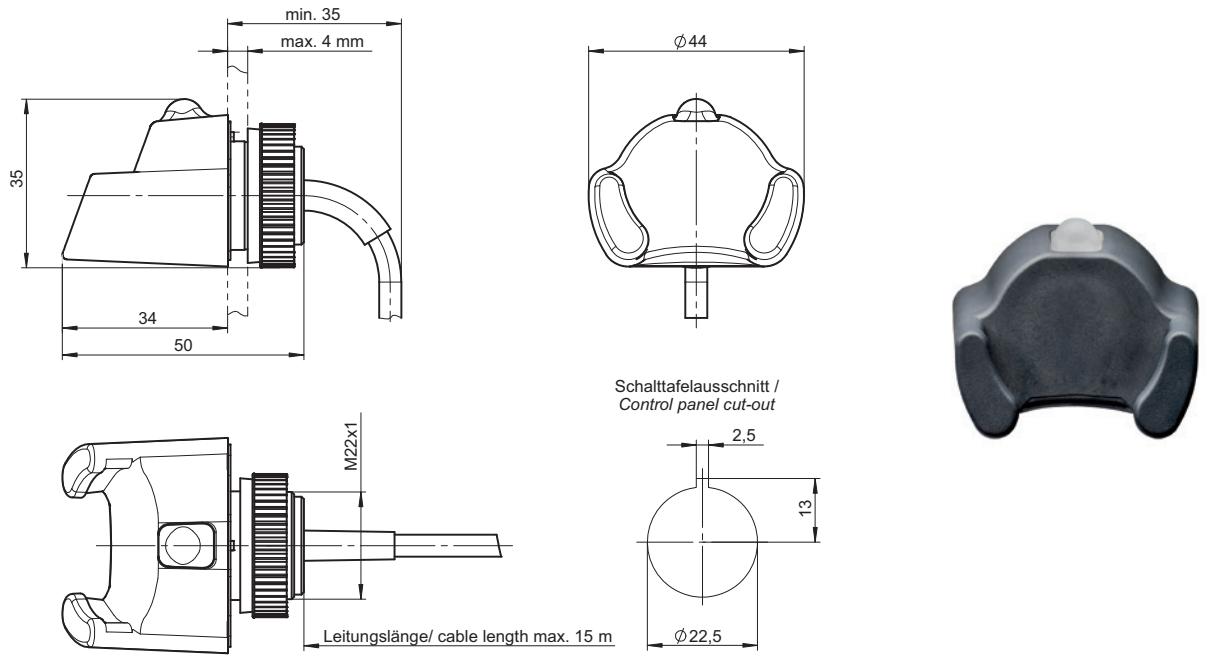
Electronic-Key adapter

Series	Design	Version	Order no./item	
EKS-A-SFH-G30-... Electronic-Key adapter FHM	G30	2m	**106585** EKS-A-SFH-G30-2000	For detailed information, enter the order number for the product in the search box at www.euchner.com.
		3m	**158353** EKS-A-SFH-G30-3000	
		M8 0,13m	**116118** EKS-A-SFH-G30-ST150	

Accessories/software

Type	Version	
Electronic-Key read/write		Page 46
Connecting cables	Connecting cable with plug connector  M8 4 pin	Page 53

Dimension drawing



Technical data

General parameters	Value			Unit
	min.	typ.	max.	
Housing	Plastic (PVDF GF30, gray)			
Degree of protection	IP65/IP67/IP69K in installed state			
Ambient temperature	- 20		+ 70 / + 100 [1)]	°C
Mounting bore	Ø 22.5			mm
Connection	Connecting cable 2 m with flying lead or connecting cable 0.13 m with plug connector M8, 4-pin			
Connecting cable length	2, 5, 10, 15			m
Connecting cable cross-section	4 x 0.25 screened			mm²
Connecting cable outer sheath	PVC			

1) This is no ambient temperature for operation. It is valid for a time of no more than 3 minutes, e.g. for cleaning purposes.
The LED signaling is described with the interface adapter.