

# Product Overview

## ManMachine



**EUCHNER**

More than safety.

# ManMachine at a glance



	RS232 serial RS422	USB	ETHERNET	PROFI BUS
Approval				
Features/specific advantages		FSA	FSA	FSA
Version	compact	compact	compact	compact
Housing material	plastic (PA 6 GF30 gray)	plastic (PA 6 GF30 gray)	plastic (PA 6 GF30 gray)	plastic (PA 6 GF30 gray)
Ambient temperature at U <sub>b</sub> =DC24V	0 to +55 °C	0 to +55 °C	0 to +55 °C	0 to +55 °C
Mounting cut-out acc. to DIN43700	33x68 mm	33x68 mm	33x68 mm	33x68 mm
Operating voltage U <sub>b</sub> (regulated, residual ripple < 5%)	20 to 28 V DC	–	20 to 28 V DC	20 to 28 V DC
Current consumption, max.	100 mA	100 mA	150 mA	150 mA
Degree of protection acc. to IEC60529	IP67 installed	IP67 installed	IP67 installed	IP67 installed
Interface to the PC or to the control system	serial, RS232/RS422	USB Full Speed	Ethernet IEEE802.3	RS485
Transfer protocol	3964R ActiveX®-Modul as protocol driver	3964R ActiveX®-Modul as protocol driver	TCP/IP ActiveX®-Modul as protocol driver	PROFIBUS DP acc. to IEC 61158 IEC 61784-1
Data transfer rate	9.6 kBaud	9.6 kBaud	10/100 MBit/s	9.6 to 500 kBit/s 1.5 to 12 MBit/s
Connection type for power supply	miniature plug connector, 3-pole	Via USB	miniature plug connector, 3-pole	miniature plug connector, 3-pole
Interface connection type	Sub-D 9-pole	USB type B	RJ45	Sub-D 9-pole
Cable length, max.	RS232 5m/RS422 1000m	3 m	100 m	100 to 1200 m
LED indicator	green: »ready« yellow: »Electronic-Key active«	green: »ready« yellow: »Electronic-Key active«	green: »ready« yellow: »Electronic-Key active« red: »error«	green: »ready« yellow: »Electronic-Key active« red: »error«

## System overview

The Electronic-Key-System EKS is used for electronic access management. It makes it possible to also log product parameters and operator entries (e. g. in accordance with FDA standard 21 CFR part 11). The Electronic-Key, in the form of a robust tag, contains a data carrier and an antenna (transponder). The data carrier has a combined read/write and fixed-code memory (see table Electronic-Key memory structure). In operation the Electronic-Key placed inserted into the Electronic-Key adapter. The data are transferred between the Electronic-Key adapter and the Electronic-Key without using any contacts. The Electronic-Keys are available in different colors. The colors can be used, for example, to indicate the different levels of access rights.

Electronic-Key memory structure								
	E <sup>2</sup> PROM (programmable)						ROM (serial number)	
Byte no. [dec]	0	1	...	114	115	116	...	123
Byte no. [hex]	00	01	...	72	73	74	...	7B
	Quantity: 116 bytes						Quantity: 8 bytes	

## Version FSA

As an alternative the Electronic-Key adapters with USB, Ethernet TCP/IP, PROFIBUS, PROFINET interface and EKS *Light* are available in the FSA (For Safety Applications) version. To solve the widespread problem of tampering with safety guards, EKS has been expanded for safety-related applications in conjunction with operating mode selection. This version has additional switched outputs that can be utilized to form a safe shut-down signal. In this case, a safe evaluation device must be connected downstream. The EKS FSA can then be used for safety-relevant applications. The machine is reset to a safe operating mode by removing the Electronic-Key.

## Key management using the Electronic-Key-Manager EKM





With the Electronic-Key-Manager EKM EUCHNER also provides a flexible PC software package for programming and managing Electronic-Keys. The freely programmable memory on the Electronic-Key can be structured exactly as required using EKM. The full version of EKM is based on a client/server architecture with central database.

# ManMachine at a glance



**PROFINET**

**Light**

			
FSA	FSA	FSA	FSA
compact	modular	compact	modular
plastic (PA 6 GF30 gray)	plastic (PVDF GF30 grey)/(PA6.6)	plastic (PA 6 GF30 gray)	plastic (PVDF GF30 gray)/(PA6.6)
0 to +55 °C	-20 to +100 °C/ 0 to +55 °C	-20 to +70 °C	-20 to +100 °C/ -20 to +70 °C
33x68 mm	Hole Ø 22.5/ DIN rail 35 mm	33x68 mm	Hole Ø 22.5/ DIN rail 35 mm
20 to 28 V DC	20 bis 28 V DC	9 to 28 V DC	9 to 28 V DC
150 mA	150 mA	70 mA (without load)	70 mA (without load)
IP67 installed	IP65, IP67, IP69K installed	IP67 installed	IP65, IP67, IP69K installed
IEEE802.3	Ethernet IEEE802.3	4-bit parallel/plus Strobe	4-bit parallel/plus Strobe
PROFINET IO acc. to IEC 61158 IEC 61784-1 and -2	PROFINET IO acc. to IEC 61158 IEC 61784-1 and -2	binary coded via high/low level	binary coded via high/low level
10/100 MBit/s	10/100 MBits/s	-	-
miniature plug connector, 3-pole	miniature plug connector, 4-pole	miniature plug connector, 2-/4-pole	miniature plug connector, 4-pole
RJ45	RJ45	miniature plug connector, 5-pole	miniature plug connector, 4-pole
100 m	15 m / 100 m	50 m	15 m / 50 m
green: »ready« yellow: »Electronic-Key active« red: »error«	green: »ready« yellow: »Electronic-Key active« red: »error«	green: »ready« yellow: »Electronic-Key active« red: »error«	green: »ready« yellow: »Electronic-Key active« red: »error«

## Series EKS Light – Access the easy way...

EKS Light is characterized by simple integration into the control system environment. After the Electronic-Key is placed, the Electronic-Key's data are evaluated within the device as the first step, which permits automatic Electronic-Key recognition without the aid of the control system. Once the internal check of the data integrity is complete, an access level is issued at the data outputs.

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

## Compact and modular design

The EKS with PROFINET interface and the EKS Light are available in compact and modular design. In the compact version, the Electronic-Key adapter and the electronics form a unit. The Electronic-Key latches into the Electronic-Key adapter and is retained there. In the modular version, by contrast, the Electronic-Key adapter is mounted spatially separate from the electronics. The modular Electronic-Key adapter allows the Electronic-Key to be placed by hooking on the front side. Thanks to the shallow installation depth, installation is possible even in tight spaces. The design was realized with a view to applications in hygienically sensitive areas.

Environment	Approval
	Housing material
	Switching lever material
	Weight
	Mechanical life, min.
	Ambient temperature with spring return switch
	Ambient temperature with stayput switch
	Mounting
	Degree of protection to IEC 529 on actuating side with/without bellows
	Switching elements, max.
Connection	Connection
	Contact elements
	Switching principle
	Rated insulation voltage $U_i$
	Rated impulse withstand voltage $U_{imp}$
	Utilization category AC 15
	Utilization category DC 13
	Switching current, min. at 24 V
	Switching voltage, min.
	Contact material
Short circuit protection (control circuit fuse)	
Number of actuating directions, max.	
All-round actuation R (spring return switch only)	
Switching positions per direction	
Pushbutton D	

● available ○ available on request

All given data refer to the respective minimum

## Joysticks



Joystick  
WK



Joystick  
WE



Joystick  
KB



Joystick  
KF



Joystick  
KE



Joystick  
KC



reinforced thermoplastic/ aluminium	reinforced thermoplastic/ aluminium	reinforced thermoplastic/ aluminium	reinforced thermoplastic/ aluminium	duroplast	reinforced thermoplastic/ aluminium
stainless steel	galvanized steel	stainless steel	stainless steel	stainless steel	galvanized steel
approx. 0.17 kg	approx. 0.65 kg	approx. 0.2 kg	approx. 0.2 kg	approx. 0.1 kg	approx. 0.75 kg
1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>	1 x 10 <sup>6</sup>
-5 to +65 °C	-5 to +65 °C	-5 to +65 °C	-5 to +65 °C	-25 to +65 °C	-5 to +65 °C
-25 to +65 °C	-25 to +65 °C	-25 to +65 °C	-25 to +65 °C	-25 to +65 °C	-25 to +65 °C
IEC 947-5-1 D30	Front panel installation	IEC 947-5-1 D30	IEC 947-5-1 D22	IEC 947-5-1 D22	front panel installation
IP65/IP54	IP65/IP54	IP65	IP65	IP65	IP65/IP50
8	8	4	4	4	3 per direction
tab connector	screw terminal	tab connector/ screw terminal	screw terminal	tab connector/ screw terminal	tab connector/ screw terminal
changeover contact C IEC 947-5-1	changeover contact C IEC 947-5-1	changeover contact C IEC 947-5-1	changeover contact C IEC 947-5-1	changeover contact C IEC 947-5-1	changeover contact C IEC 947-5-1
snap-action contact element	snap-action contact element	snap-action contact element	snap-action contact element	snap-action contact element	snap-action contact element
250V	250V	250V	250V	250V	250V
2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
230V/4A	230V/10A	230V/5A	230V/5A	230V/4A	230V/4A
24V/2A	24V/4A	24V/3A	24V/3A	24V/2A	24V/2A
12 mA	50 mA	10 mA	10 mA	12 mA	12 mA
10V	24V	12V	12V	10V	10V
silver alloy	silver alloy	silver alloy	silver alloy	silver alloy	silver alloy
T6/F10	T16/F25	T10/F20	T10/F20	T10/F20	T6/F10
8	8	8	8	8	8
○	○	○	–	○	○
1	1	1	1	1	1
○	○	–	–	–	○

– not available

Further information is available at [www.euchner.com](http://www.euchner.com)

or maximum values for the entire series.

# ManMachine at a glance

## Hand-Held Pendant Stations



Kit available	●	–	●	–	●
Approvals					
Housing material	plastic	plastic	plastic	plastic	plastic
Color	gray RAL 7040	gray RAL 7040	gray RAL 7031	gray RAL 7031	anthracite
Weight	approx. 0.8 kg	approx. 0.85 kg	approx. 2.1 kg	approx. 2.2 kg	approx. 1.1 kg
Operating temperature	0 to +50 °C	0 to +50 °C	0 to +50 °C	0 to +50 °C	0 to +50 °C
Storage temperature	-20 to +50 °C	-20 to +50 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C
Degree of protection acc. to EN 60529/NEMA	IP65/250-12	IP65/250-12	IP65/250-12	IP65/250-12	IP65/250-12
Connection	spiral cable 3.5 m, plug connector	spiral cable 3.5 m, plug connector	cable 3.5 m straight, plug connector	cable 3.5 m straight, plug connector	cable 3.5 m straight, plug connector
Selector switches	2 x 6 positions	–	3 x 12 positions	2 x 12 positions	2 x 6 positions
Membrane keypad	3	20	–	12	–
Enabling switches	2/3-stage	2/3-stage	2/3-stage	2-stage	2/3-stage
EMERGENCY STOP device acc. to EN 13820	●	●	●	●	●
Handwheel 100 pulses	●	–	●	●	●
Buttons	–	–	3	–	6
Key-operated switch	–	–	●	–	–
Interface	RS422A (handwheel)	serial, RS422A 3964R protocol	RS422A (handwheel)	serial, RS422A 3964R protocol	RS422A (handwheel)

Housing

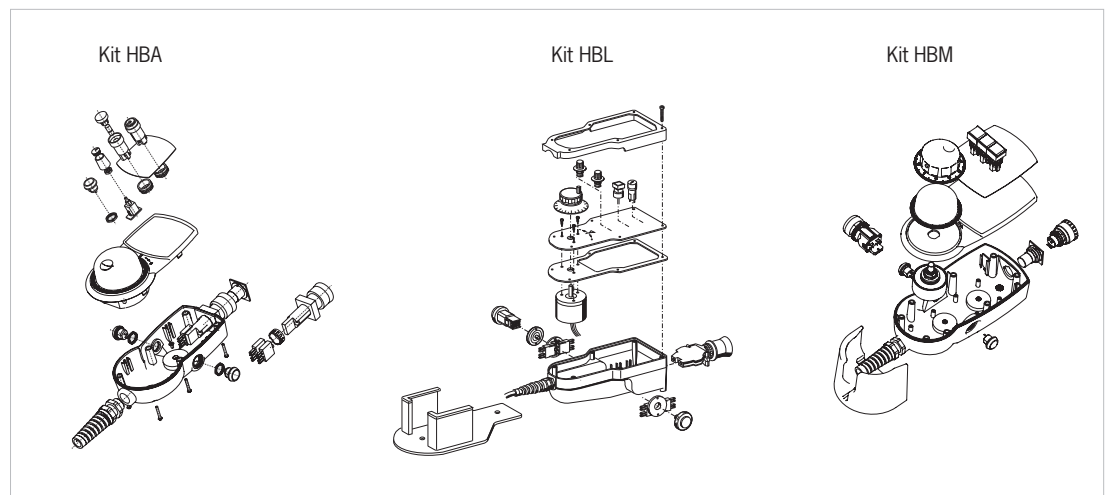
Features

### Kits for hand-held pendant stations

To enable you to use ergonomically designed housings even for small quantities, e. g. prototypes or special versions, EUCHNER provides kits for hand-held pendant stations. As a result you can assemble a hand-held pendant station in a user-friendly housing to suit your requirements.

### Custom hand-held pendant stations

Customized hand-held pendant stations based on the standard devices can also be produced in small quantities. EUCHNER offers the option of customized solutions so these ergonomically designed housings can be used for various requirements.



● available    ○ available on request    – not available

All given data refer to the respective minimum or maximum values for the entire series.

# ManMachine at a glance

## Electronic Handwheels



Handwheel  
HKB



Handwheel  
HKC



Handwheel  
HKD



Handwheel  
HWA



Handwheel  
HWB

Approval



Housing material

aluminium

aluminium

aluminium

plastic/metal

plastic/metal

Weight

0.095 kg

0.25 kg

0.5 kg

0.1 kg

0.125 kg

Mechanical life, min.

$5 \times 10^6$

$5 \times 10^6$

$20 \times 10^6$

$1 \times 10^6$

$1 \times 10^6$

Operating temperature

0 to +50 °C

0 to +50 °C

0 to +70 °C

0 to +50 °C

0 to +50 °C

Storage temperature

-20 to +50 °C

-20 to +50 °C

-25 to +85 °C

-20 to +50 °C

-20 to +50 °C

Atmospheric humidity, max.

80 %

80 %

80 %

80 %

80 %

Front degree of protection,  
EN 60529/IEC 529

IP65

IP65

IP65

IP65

IP65

Front degree of protection, NEMA

250-12

250-12

250-12

250-12

250-12

Pulses per revolution

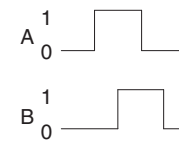
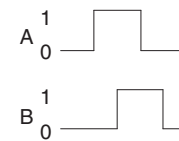
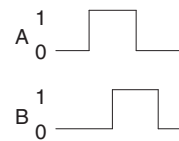
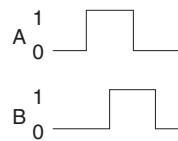
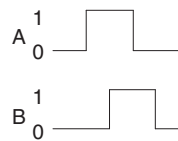
25 or 100, 2 signals  
each (A/B), 90° offset

25 or 100, 2 signals  
each (A/B), 90° offset

25 or 100, 2 signals  
each (A/B), 90° offset

25 or 100, 2 signals  
each (A/B), 90° offset

25 or 100, 2 signals  
each (A/B), 90° offset



Detent mechanism

magnetic

magnetic

magnetic

mechanical

mechanical

Detent positions

100

100

100

100

100

Shaft loading, axial, max.

25 N

25 N

25 N

25 N

25 N

Shaft loading, radial, max.

40 N

40 N

40 N

40 N

40 N

Resistance to vibration

Vibration (3 axes)

DIN/IEC 68-2-6

DIN/IEC 68-2-6

DIN/IEC 68-2-6

-

-

Shock (3 axes)

DIN/IEC 68-2-27

DIN/IEC 68-2-27

DIN/IEC 68-2-27

-

-

EMC protection requirement acc. to CE

EN 61000-6-2  
EN 61000-6-4

EN 61000-6-2  
EN 61000-6-4

EN 61000-6-2  
EN 61000-6-4

-

-

Output circuit

RS422  
or push-pull

RS422  
or push-pull

RS422  
or push-pull

RS422  
or push-pull

RS422  
or push-pull

Connection

screw terminal S

screw terminal S

ribbon cable V,  
screw terminal S

screw terminal T

screw terminal T

Environment

Connection

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