



MAN-EKS



Ferndale

Safety

Toll-Free: 855-326-1243
<https://www.ferndalesafety.com>

MACHINE ACCESS CONTROL ELECTRONIC KEY SYSTEM

MODEL EKS-MAC-KIT

Quick Installation Guide





Thank you for purchasing the EKS machine access control electronic system. We have made this installation guide to help you set up and use this Product. This guide assumes that you are familiar with industrial electronics and control wiring. If you need any extra help, please call us at 855-326-1243.

FOR MORE DETAILED DOCUMENTATION, PLEASE VISIT: <https://www.euchner.de/en-us/>

Unboxing & Component Identification

Please open your packages and verify that you have all the following components for each EKS kit you purchased. If you do not, please call us right away.

			
Quantity: 1 Red Key Fob Model 077859	Quantity:1 Interface Adapter Model 113647	Quantity: 1 Reader Unit Model 106585	Quantity: 1 Mini Relay Model RELAY-LP-024DC

You may also have purchased additional key fobs in different colors. Please check if you have everything included.

Other Components

In addition to the above components, you will also need these components (not included).

1. 24VDC power supply
2. Connection wires, 14 AWG or smaller
3. DIN Rail to mount the interface adapter

Tools needed:

1. Small flathead screwdriver
2. Wire strippers
3. Wire cutters

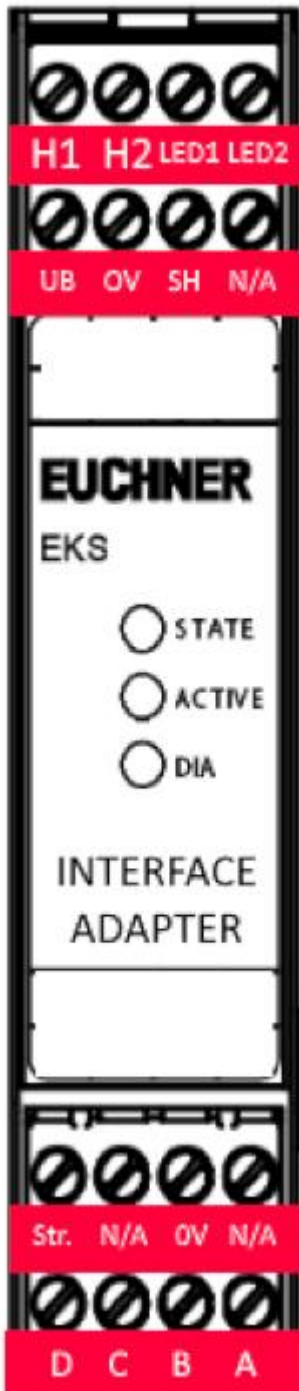
Tools needed for making a hole for the reader unit

1. Drill
2. Step drill or hole saw 7/8" or 22.5mm.

The Interface Adapter

The interface adapter is the primary controller of the EKS system.

The following screw terminals are located on the interface adapter.



H1	Connect to reader unit (Antenna)
H2	Connect to reader unit (Antenna)
LED1	Connect to reader unit (LED 1)
LED2	Connect to reader unit (LED 2)
SH	Connect to reader unit (Shield)
UB	Connect to the power supply (+24 VDC)
OV	Connect to the power supply (0 VDC)
Str.	This output is active if there is a valid key fob in the reader.
N/A	Not Applicable, Not used.
D	Output D (Connect to mini relay)
C	Output C
B	Output B
A	Output A

The interface adapter will signal its operating status by utilizing three LEDs in three colors:

LED Name	Color	Description
STATE	Green	Ready
ACTIVE	Yellow	Reading*
DIA	Red	Diagnostics or error*

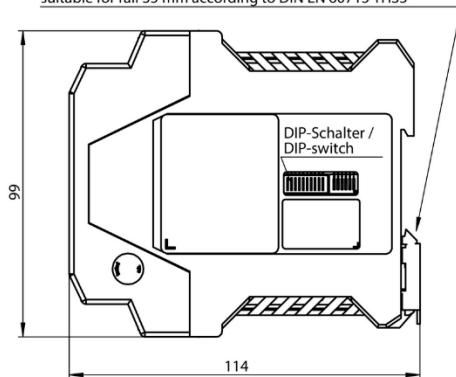
*See Appendix 1 for flashing descriptions of these LED lights.

Tighten the terminal screws on the plug to 0.22 Nm.

The Interface Adapter

(Continued from the previous page)




suitable for rail 35 mm according to DIN EN 60715 TH35



The interface adapter has two sets of DIP switches on the side of it. Here is a visual representation of the DIP switches:

Switch #	S1.1	S1.2	S1.3	S1.4	S1.5	S1.6	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S2.7	S2.8	S2.9	S2.10	
ON						■											
OFF	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■
	Parity bit	Always off	Operating state			Access code											

Switch #	Description of switch function
S1.1	Parity bit: Set this switch based on the configuration of all other switches. <ol style="list-style-type: none"> Add up how many switches from S1.2 to S2.10 are set to ON. If the total is an even number, then switch S1.1 to OFF. If this value is an odd number, then switch S1.1 to ON.
S1.2	No function: Ensure that this switch is always off .
S1.3 to S1.6	Operating state: Switch S1.6 is always ON. Switches S1.3, S1.4, and S1.5 are always OFF.
S2.1 to S2.10	Access code: These are set depending on which colored key fob is granted access.

Key fob color	DIP switch number
 Red	S2.10
 Black	S2.9
 Blue	S2.8
 Green	S2.7
 Yellow	S2.6
 White	S2.5
 Orange	S2.4

Access Codes & Key Fob Colors

The DIP switches S2.1 through S2.10, control which colored key fobs are granted access. Refer to the table on the left to see each key fob color's corresponding DIP switch.

Flipping the correct switches determines which key fob colors the interface adapter permits.

Example: to allow access only to holders of red and blue key fobs, set only DIP switch S2.10(red) and DIP switch S2.8(blue) to the ON position. Your DIP switch settings will now look like this:

Switch #	S1.1	S1.2	S1.3	S1.4	S1.5	S1.6	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S2.7	S2.8	S2.9	S2.10
ON														■		
OFF	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Note that switch S1.1 is set to ON because there is an odd number of switches (S1.2 to S2.10) in the ON position, totaling three.

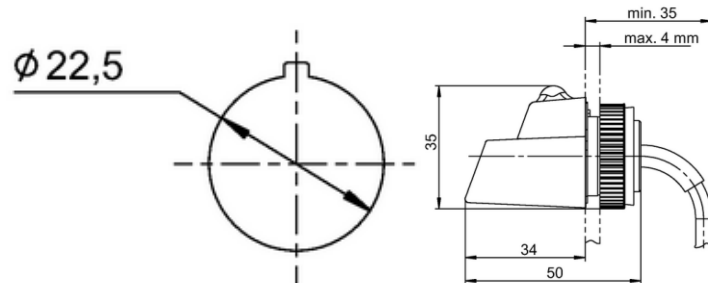
**The key fobs are pre-programmed by Ferndale Safety based on their color. Please get in touch with us if you wish to program the keys yourself or require a custom configuration.

The Reader Unit



You can install the reader unit on a panel, button station, or flat sheet metal surface.

It mounts into a standard 22.5mm or 7/8" hole.



The included 2-meter cable plugs directly into the interface adapter.

Use the following chart to match the reader unit wire color with the terminal on the interface adapter.

The wire color on the reader unit	Description	Terminal on the interface adapter
Brown	Antenna	H1
White	Antenna	H2
Yellow	LED 1	LED1
Green	LED 2	LED2
Black	Shield	SH

Operation and Usage Instructions

1. The user approaches the machine and inserts their key fob into the reader unit.
2. If the interface adapter does not authorize the inserted key fob, the reader unit will flash green and red, and no further action will occur.
3. If the interface adapter authorizes the key fob:
 - a. The indicator light on the reader unit will turn yellow.
 - b. The interface adapter will activate, sending a signal to turn on the mini relay through terminal D.
4. The activation of the mini relay closes a contact, signaling the machine to allow operation.
5. The user must then press the "start" button or a similar control to start the machine.
6. Depending on your circuit configuration, removing the key fob during operation will either:
 - a. Immediately shut down the machine and disable operation until an authorized key fob is inserted or
 - b. Allow the machine to continue operating until a "stop" button is pressed.

The Mini Relay



*Note: The relay you receive may vary from the image displayed.

The included mini relay pairs your machine to the interface adapter. Install the mini relay between your machine's control circuit and the interface adapter. Mount this mini relay onto a standard DIN rail.

The relay includes one single pole, double throw (SPDT) contact. Connect your machine's control circuit to the output of this relay.

Connect the **A2** terminal of the relay to your **0VDC** power supply.
Connect the **A1** terminal of the relay to output terminal **D** of the interface adapter.

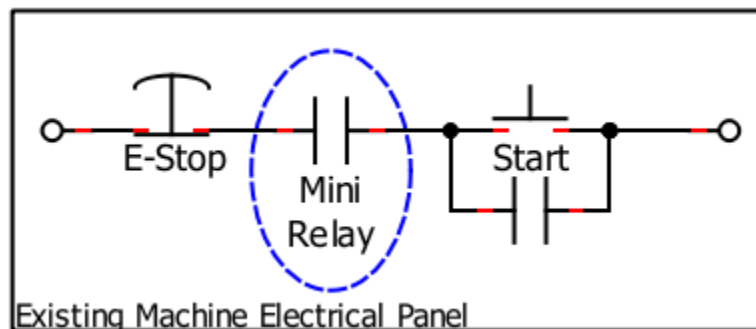
Specifications of Mini Relay

Rated contact current	6A
Maximum contact peak current	10A
Rated contact voltage	250VAC
Maximum switching voltage	400VAC
Rated contact load AC1	1500VA
Rated contact load AC15 (230 VAC)	300VA
Coil nominal voltage	24VDC
Rated coil consumption	10.4mA / 0.3W
Coil operating range	19.2VDC to 28.8VDC

Connecting the mini relay to your machine

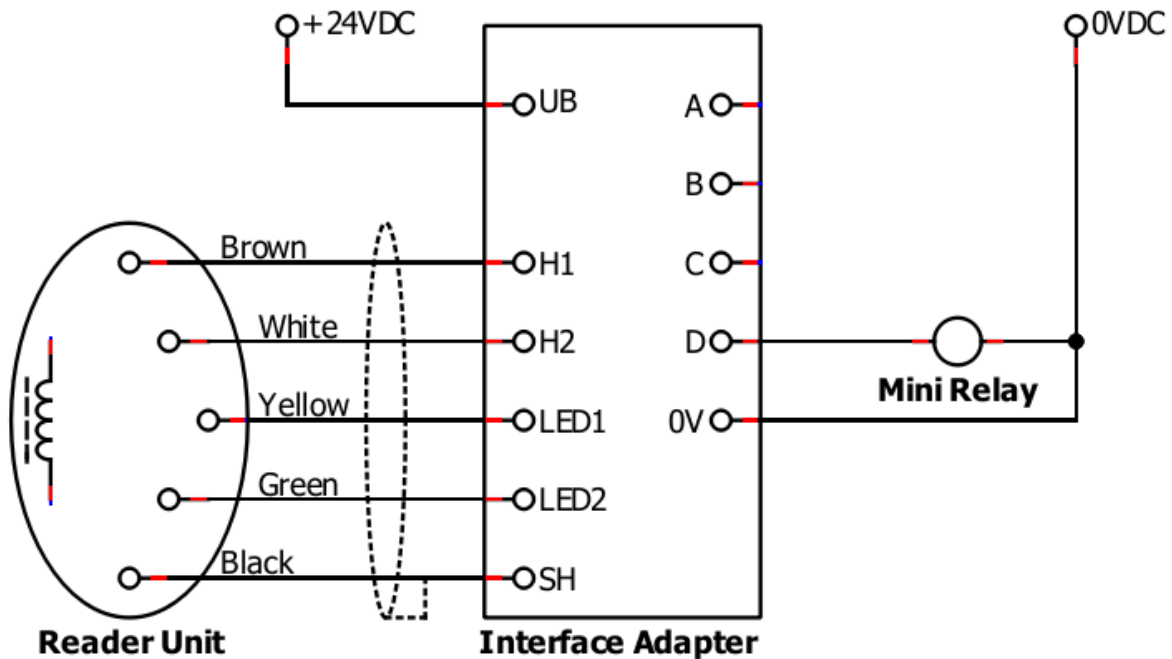
Each machine is different, so it will be up to you to figure out how to best interface the mini relay to your machine.

The following electrical schematic shows an **example** of where you could connect the mini relay in your machine's circuit. The mini relay is placed in series with the emergency stop button circuit in this case.



Electrical Schematic and Connections

You need to provide a 24VDC power supply. Refer to the schematic provided to set up the included mini relay.



Important: Do not connect contactors or high-powered devices to the interface adapter's output terminals. The maximum load current for terminals A, B, C, D, and Str is 50mA.

For advanced features and connections, please refer to the Euchner manuals.

Google search: "**Euchner 110845**"

Electronic-Key-System, Manual, EKS Light, and Light FSA

Appendix 1

LED Indicators

LED and flashing sequences in regular operation and error events

LED Color	LED State	Status	Description
Green	Solid	Ready for key	The EKS system is ready.
Yellow	Solid	Access approved	A valid key is in the reader, and access is approved.
Green/Yellow	Flashing	No Access	The access code programmed on the key fob does not match the access code setting on the device. Check the key fob color and the DIP switch settings.
Green/Yellow	Flashing 1x briefly yellow	No Access	Checksum (CRC) is not conclusive. Check the key fob programming. There may have been a tampering attempt.
Green/Yellow	Flashing 2x briefly yellow	No Access	The operating state programmed on the key fob does not match the operating state setting in the device. Check DIP switch S1.3 to S1.6 for correct settings.
Green/Yellow	Flashing 3x briefly yellow	No Access	The access level programmed on the key fob does not match the possible value in the current operating state.

The device will enter a fault state if the following errors occur

Color	LED State	Status	Description
Red	Flashing 1x briefly	No Access	Reserved for future applications. Check the settings of the DIP switch.
Red	Flashing 2x briefly	No Access	The parity bit check within the device's DIP switch is not conclusive. Check the settings of the DIP switch.
Red	Flashing 3x briefly	No Access	The operating state set on the DIP switch is not available. Check the DIP switch settings.
Red	Flashing 4x or more briefly	No Access	Device defect (hardware). Please return the device for inspection to Euchner.

Appendix 2

Technical Specifications

	Value			Unit
	min.	typ.	max.	
General parameters of Electronic-Key adapter Front Hook Modular FHM				
Housing	Plastic (PVDF GF30 gray)			
Degree of protection according to EN 60529	IP 65, IP 67, IP 69K in installed state			
Ambient temperature	-20		+70 /+100*	°C
Mounting hole	Ø 22.5			mm
Connection	Cable fixed to Electronic-Key adapter, with flying lead			
Connection cable length	2			m
Connection cable cross-section	4 x 0.25 screened			mm ²
Connection cable outer sheath	PVC			
General parameters of interface adapter modular				
Housing	Plastic (PA 6.6)			
Ambient temperature at UB = DC 24 V	-20		+70	°C
Mounting	35-mm DIN rail acc. to DIN EN 60715 TH35			
Connectable Electronic-Key adapter	1			
Connection type for power supply, outputs, Electronic-Key adapter and semiconductor switching contact (FSA)	4 plug-in screw terminals, 4-pole, Conductor cross-section 0.14 ... 2.5 mm ²			
Cable length to Electronic-Key adapter		2	15	m
Electronics, interface and signaling				
Operating voltage U _B (regulated, residual ripple < 5 %)	9	24	28	DC V
Current consumption I _B (without load current)			70	mA
Interface to inputs of control system or switch unit	4-bit parallel plus strobe, binary coded via High/Low level			
Load current per output I _A	1	10	50	mA
Output voltage U _A (High level) for A,B,C,D, strobe	U _B - 2		U _B	V
Cable length to control LED indicator			50	m
	green "Ready" (in operation) yellow "Electronic-Key active" ** red "Error"			

WARRANTY

Ferndale Safety's Commitment:

Ferndale Safety ("FERNDALE") guarantees that its products are free from material and workmanship defects for one year from the date of purchase. Custom-made products carry a three-month (90 days) warranty from the date of purchase.

Exclusions:

This limited warranty does not cover, and FERNDALE shall have no obligation or liability with respect to, any damage, injuries, or problems resulting from:

- Non-FERNDALE authorized installations.
- Insufficient maintenance, including failure to remove chips and coolant.
- Misuse, negligence, or accidents.
- Unauthorized alterations, modifications, or repairs.
- Claims on products beyond their warranty period or used contrary to their intended purpose.
- Damage due to chemical contamination or foreign objects.
- Use of FERNDALE products for "hot work."

Disclaimer:

FERNDALE MAKES NO WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR THE PARTICULAR PURPOSE OF THE PRODUCTS; ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OR THEIR INTENDED USE. FERNDALE DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED.

Limitation of Liability:

FERNDALE will not be liable for any indirect, incidental, or consequential damages, including loss of profits or commercial loss, regardless of the cause. Liability for any claim shall not exceed the purchase price of the Product in question. Claims related to warranty, repair, or other concerns will only be considered if FERNDALE'S evaluation confirms proper handling, storage, installation, maintenance, and absence of misuse or inappropriate modifications.

By purchasing Our Products, you agree not to use them for "hot work" (e.g., grinding, welding, soldering, cutting) due to fire risk. Misuse is forbidden, and following all safety guidelines is required. Non-compliance means you accept full responsibility for any resulting harm or damage. For your safety and the effectiveness of Our machine guarding, remain within the "Safe Work Zone" directly in front of the guard. Standing to the side increases injury risk and breaches our usage policy. Adhering to this rule ensures your safety and the Product's optimal performance. For detailed safety and operational guidelines, please see our Terms and Conditions here: <https://www.ferndalesafety.com/terms-and-conditions/>.

Product Returns & Exchanges:

Return Policy:

If dissatisfied, contact us within 30 days of receipt for a refund, excluding shipping costs, subject to inspection. Custom or special-order items are non-returnable. Returns must be in original packaging, unused, and in sellable condition, subject to a 35% restocking fee. The restocking fee is waived if the item is exchanged.

Return Authorization:

Before returning, obtain a Return Merchandise Authorization (RMA) by calling 514-326-1243. FERNDALE reserves the right to refuse returns on damaged or non-resalable items.

After 30 Days:

Upon authorization, returns initiated after 30 days from invoice date are subject to a 35% restocking fee and future purchase credit only.

Shipping Charges:

Customers bear return shipping costs, which are non-refundable. Use traceable and insured shipping methods. Customers are responsible for freight charges on canceled orders shipped before the cancellation notice.