# **KF** Series Solenoid Key Lock Switches

# IDEC's original solenoid key lock switches, suitable for control of 2-deck/3-deck mechanical parking lots

- Two types of mounting styles: ø30mm mounting that can be installed in IDEC's AGA enclosures, and M3 screw mounting type.
- DPDT or 4PDT contacts, up to 67 different keys, master key is also available. (Two keys are supplied.)
- . In combination with a waterproof enclosure, the KF series provides degree of protection of IP65.



#### **KF** Series

es		Key Retained		Mounting	Solenoid	Solenoid	No. of	Part No.		Operator Position Contact Operation (Top View)					
Seri	Position		at •		Style	Control	Rating	Contacts	Silver Contact	Gold Contact	No. of Contacts	Left	Center	Right	
	子 90° 2-Position	Maintained	Р		ø30mm	Spring lock	12V DC	SPDT	KF1L-251B	KF1L-211B				NO NC X side	
								DPDT	KF1L-261B	KF1L-221B					
							24V DC	SPDT	KF1L-25B	KF1L-21B					
								DPDT	KF1L-26B	KF1L-22B	SPDT		_		
						Solenoid lock	12V DC	SPDT	KF1F-251B	KF1F-211B					
								DPDT	KF1F-261B	KF1F-221B					
							24V DC	SPDT	KF1F-25B	KF1F-21B					
								DPDT	KF1F-26B	KF1F-22B					
			Ъ			Spring lock	12V DC	SPDT	KF2L-251B	KF2L-211B	DPDT	DPDT	_	Laft Flight Contact Contact NO NC NO NC Y side X side	
					M3 screw			DPDT	KF2L-261B	KF2L-221B					
							24V DC	SPDT	KF2L-25B	KF2L-21B					
KE								DPDT	KF2L-26B	KF2L-22B					
N.F						Solenoid lock	12V DC	SPDT	KF2F-251B	KF2F-211B					
								DPDT	KF2F-261B	KF2F-221B					
							24V DC	SPDT	KF2F-25B	KF2F-21B					
								DPDT	KF2F-26B	KF2F-22B					
	45° 3-Position	Maintained	D	O <sup>©</sup> 0	ø30mm	Spring lock	12V DC	DPDT	KF1L-361D	KF1L-321D	- DPDT				
							24V DC	DPDT	KF1L-36D	KF1L-32D		]			
						Solenoid lock	12V DC	DPDT	KF1F-361D	KF1F-321D		Left Right	Left Right	Left Right	
							24V DC	DPDT	KF1F-36D	KF1F-32D		DT			
					M3 screw	Spring lock Solenoid	12V DC	DPDT	KF2L-361D	KF2L-321D				۲ ک <sup>۲</sup> ا	
							24V DC	DPDT	KF2L-36D	KF2L-32D			Y side <sup>T</sup> X side <sup>T</sup>	Y side <sup>T</sup> X side <sup>T</sup>	
							12V DC	DPDT	KF2F-361D	KF2F-321D					
										lock	24V DC	DPDT	KF2F-36D	KF2F-32D	

While the solenoid is not energized, the key can be inserted, but cannot be removed. Spring lock:

While the solenoid is energized or the button is depressed, the key can be inserted or removed.

Solenoid lock: While the solenoid is not energized, the key can be inserted or removed. While the solenoid is energized, the key cannot be inserted or removed.

• If other contact configurations are needed, key insertion/removal patterns, or different key numbers other than the above, contact IDEC for more information.

Two keys are supplied. (For ordering spare keys, see page 182.)
Custom-made keys (with user's trademark, etc.) are also available. Contact IDEC for more information.

# KF Series Solenoid Key Lock Switches

# **Contact Ratings (Microswitch)**

Insulation Voltage	250V		
Thermal Current	5A		
Operating Voltage & Current	Silver contact microswitch: 250V AC, 5A (resistive load) 125V AC, 5A (resistive load) 30V DC, 5A (resistive load) Gold contact microswitch: 30V DC, 0.1A (resistive load)		
Switching Frequency	900 operations/hour		

• AC inductive load PF = 0.6 to 0.7

• DC inductive load L/R = 7 ms or less

• Minimum applicable load (reference value): Gold contact microswitch 24V DC, 1 mA

## **Solenoid Ratings**

Rated Insulation Voltage	60V			
Rated Operating Voltage	12V DC ±10%	24V DC ±10%		
Rated Insulation Current	273 mA	133 mA		
Coil Resistance	44Ω	180Ω		
Pickup Voltage	90% of rated voltage maximum (at 20°C)			
Dropout Voltage	10% of rated voltage minimum (at 20°C)			
Maximum Continuous Applicable Voltage	110% of rated voltage			
Maximum Continuous Voltage Application Time	48 hours			
Power Consumption	Approx. 3.3W	Approx. 3.2W		
Switching Frequency	900 operations/hour			

## Specifications

			Flush	
Standard O Conditions	perating	Operating temperature: -25 to +50°C (no freezing) Storage temperature: -45 to +80°C (no freezing) Operating humidity: 45 to 95% (no condensation)	Silhouette Switches & Pilot Lights	
Contact Rev	sistance	50 mQ maximum (initial value)	Display Lights	
Insulation B	lesistance	100 MQ minimum (500V DC megger)		
Dielectric St	trength	Between live and dead metal parts: 1500V AC, 1 minute Between live metal parts of different poles:	LED Illumination Units	
		1000V AC, 1 minute	Display	
Shock	Operating Extremes	100 m/s <sup>2</sup>	Units	
Resistance	Damage Limits	1000 m/s <sup>2</sup>	Safety Products	
Vibration	Operating Extremes	5 to 55 Hz, 0.5 mm	Terminal	
Resistance	Damage Limits	30 Hz, amplitude 3.0 mm (1 hour each in 6 directions)	BIOCKS	
Mechanical	Life	50,000 operations minimum (key insertion/removal: 10,000 minimum)	Comm. Terminals	
Electrical Li	fe	50,000 operations minimum		
Terminal St	yle	Solder/tab terminal #110	AS-Interface	
Degree of P	rotection	IP65 (IEC 60529)		
Operating Parts	Rotation	2.5 N·m	Relays &	
Strength	Key Removal	200N (for solenoid lock)	limers	
Terminal St	rength	10N or more	Sockets	
Weight (App	prox.)	275g (ø30mm mounting type, DPDT, excluding kev)		
			Circuit	



# KF Series Solenoid Key Lock Switches

# Panel Cut-out

#### ø30mm Mounting





## Terminal Arrangement (Bottom View)



\* The 4.8 mm recess is for preventing rotation and is not necessary when a nameplate or anti-rotation clip is not used.

# Accessories (Optional)

Name	Specifications	Part No.	Ordering No.	Package Quantity	
Locking Ring Wrench Ø46	Rubber	OR-12	OR-12	1	
Nameplate +40	Aluminum	NA-0	NA-0	1	
	1.2 mm thick		NA-0PN10	10	
Key 57.5	Brass (nickel-plated) 1.8 mm thick	KF9Z-SKF00	KF9Z-SKF00	1	
Anti-rotation Clip	Metallic	KF9Z-R	KF9Z-RPN10	10	

# **Safety Precautions**

- Turn off power to the switch before installation, removal, wiring, maintenance, and inspection. Failure to turn power off may cause electrical shocks or fire hazard.
- For wiring, use wires of proper size to meet the voltage and current requirements. Improper soldering or failure to tighten the terminal screw may cause overheating and fire.

# Instructions

#### Notes on Panel Mounting

#### ø30mm Mounting

- Fasten the bezel securely with the locking ring wrench (OR-12). If the anti-rotation clip is not required, remove it in advance.
- M3 Screw Mounting
- Select a proper screw length so that the screw penetrates the housing between 3 mm and 5 mm, in consideration of the mounting panel thickness. For example, when the panel thickness is 2 mm, select  $M3 \times 5$  to 7 screws. If the screw is too long, the key lock switch cannot be mounted, and the waterproof characteristics may be degraded.

#### Wiring

182

 Solder the terminal at 330°C within 3 seconds, using a 60W soldering iron. Sn-Ag-Cu solder is recommended.

- When soldering, do not touch the switch housing with the soldering iron. Also ensure that no tensile force is applied to the terminals. Do not bend the terminals or apply excessive force to the terminals.
- Do not apply excessive force to the solenoid lead wire.
- Use a non-corrosive rosin flux.

#### Contacts

- When switching inductive loads, contact resistance is increased by arcing. Therefore, it is recommended to connect a contact protection circuit to ensure contact reliability.
- When using NO and NC contacts of the same microswitch, avoid connections of different voltages, or connections of different types of power supplies. Failure to observe this instruction may cause a short-circuit.