

Selection table for safety switch TK with guard locking (without protection against unintentional closing)

Release feature					
HE	Mechanical release on the switch head				
Guard locking pin					
	A	C	Right		
			Left		
Connection					
			M	Thread M20x1.5 for cable gland	
Release feature	Guard locking pin			Connection	Page
HE	A	C	M		
●	●		●		84
●		●	●		85



Safety switch TK with guard locking (without protection against unintentional closing)



- ▶ Mounting on plastic housing TP with actuating head and guard locking pin made of metal
- ▶ High locking forces of well above 5000 N
- ▶ Mechanical release on the switch head
- ▶ Actuating element for auxiliary shutdown on front
- ▶ Cable entry M20 x 1.5



Function

Guard locking is by movement of the locking pin, which is inserted in a "recess".

Mechanical release

This releases the guard locking after operation with a triangular key (DIN 22417). Triangular key see accessories on page 91.

Auxiliary shutdown feature

When actuated, positively driven NC contacts 21-22 or 41-42 are opened. The safety guard remains locked. The auxiliary shutdown feature must be sealed to prevent tampering (for example with sealing lacquer).

Solenoid operating voltage

- ▶ AC/DC 24 V +10%, -15%
- ▶ AC 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

Guard locking types

TK1 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

TK2 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

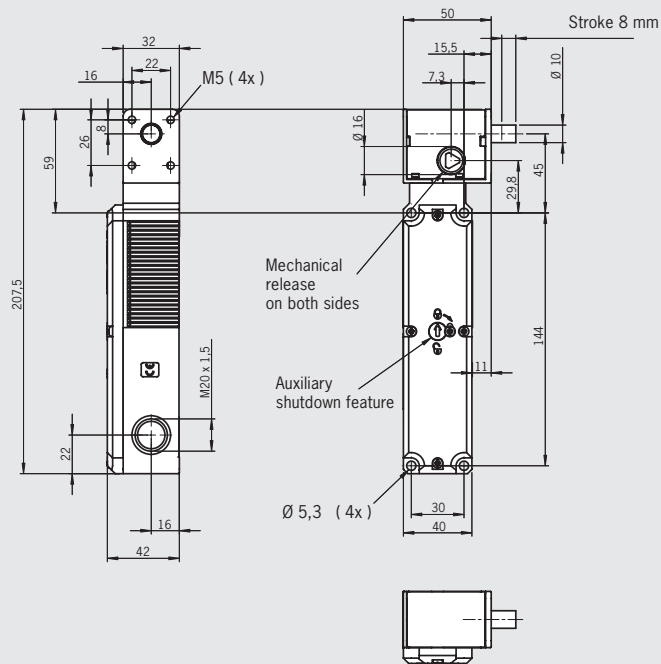
- ▶ **528** Slow-action switching element 1 NC ⊖ + 1 NO
- ▶ **4131** Slow-action switching element 2 NC ⊖ + 2 NO

Ordering table

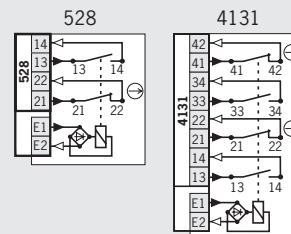
Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TK	M Cable entry 3 x M20 x 1.5	1 Mechanical	528 1 NC ⊖ + 1 NO	A Guard locking pin right	094652 TK1-528AB024M	-	-
			4131 2 NC ⊖ + 2 NO	A Guard locking pin right	099686 TK1-4131AB024M	-	-
		2 Electrical	4131 2 NC ⊖ + 2 NO	A Guard locking pin right	099690 TK2-4131AB024M	-	-

Cable entry M20 x 1.5
Guard locking pin right

Dimension drawing



Wiring diagrams Switch locked

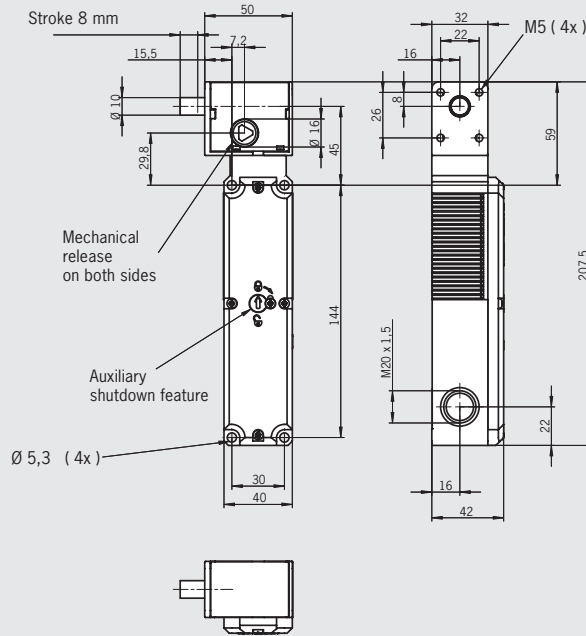


For switching functions see technical data on page 145



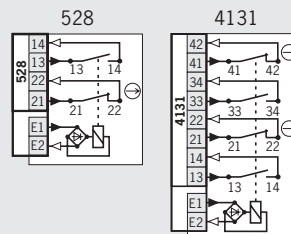
Cable entry M20 x 1.5
Guard locking pin left

Dimension drawing



For cable glands see page 104

Wiring diagrams Switch locked



For switching functions see technical data on page 145

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TK	M Cable entry 3 x M20 x 1.5	1 Mechanical	528 1 NC \ominus + 1 NO	C Guard locking pin left	094192 TK1-528CB024M	-	100016 TK1-528CB230M
			4131 2 NC \ominus + 2 NO	C Guard locking pin left	099687 TK1-4131CB024M	-	-
		2 Electrical	4131 2 NC \ominus + 2 NO	C Guard locking pin left	099691 TK2-4131CB024M	-	-

For safety precautions see page 160
For technical data see page 117



Safety switch TK... with guard locking (without protection against unintentional closing)



The technical data on switches, switching elements and guard locking apply to all connections. Further technical data are given for the connection selected.

Reliability values acc. to EN ISO 13849-1

Parameter	Value	Unit
B _{10d}	4.5 x 10 ⁶ operating cycles	

Switch



Parameter	Value	Unit
Material	Housing	Reinforced thermoplastic
	Actuating head	Metal
	Guard locking pin	Metal
Mechanical life	1 x 10 ⁶ operating cycles	
Ambient temperature	- 20 ... + 55	°C
Weight	approx. 0.6	kg
Retention force	5	N
Locking force (when fitted on switch head)	5000	N

Switching element



Parameter	Value	Unit
Switching principle	Slow-action switching element	
Switching elements with 2 switching elements	528 1 NC \ominus + 1 NO	
Switching elements with 4 switching elements	4131 2 NC \ominus + 2 NO	
Switching current, min., at 24 V	1	mA
Switching voltage, min., at 10 mA	12	V
Contact material	Silver alloy, gold flashed	

Guard locking



Parameter	Value	Unit
Solenoid operating voltage	AC/DC 24 V +10/-15%	
Connection	Reverse polarity protected, integrated bridge rectifier	
Duty cycle ED	100	%
Power consumption	8	W

Connection, cable entry M20 x 1.5

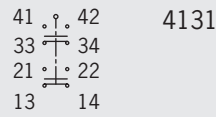
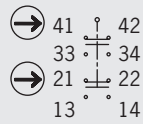
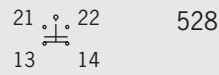
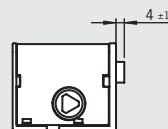
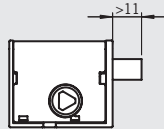


Parameter	Value	Unit
Connection	Screw terminal	
Version	M20 x 1.5	
Conductor cross-section max.	0.34 ... 1.5	mm ²
Degree of protection according to IEC 60529	IP 67	
Rated impulse withstand voltage U _{imp}	2.5	kV
Rated insulation voltage U _i	250	V AC/DC
Conventional thermal current I _{th}	4	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category to IEC 60947-5-1	AC15	I _e 4 A U _e 230 V
	DC13	I _e 4 A U _e 24 V

Switching functions TK

Locked

Not locked



Accessories for safety switches

SR6		
Parameter	Value	Unit
Housing material	Plastic	
Number of pins	7 (6 + PE)	
Cable diameter	7 - 9	mm
Nominal voltage max.	250	V AC/DC
Degree of protection according to IEC 60529 (inserted)	IP 65	
Connection	Crimp contacts 0.5 to 1.5 mm ²	



SR11		
Parameter	Value	Unit
Housing material	Plastic	
Number of pins	12 (11 + PE)	
Cable diameter	8 - 10	mm
Nominal voltage max.	50	V AC/DC
Degree of protection according to IEC 60529 (inserted)	IP 65	
Connection	Crimp contacts 0.5 to 1.5 mm ²	



M12 with cable (SGLF, SWLF)		
Parameter	Value	Unit
Housing material	Metal / plastic	
Number of pins	5	
Nominal voltage max.	30	V AC/DC
Degree of protection according to IEC 60529 (inserted)	IP 68	
Connection	5 open cable ends	



RC18		
Parameter	Value	Unit
Housing material	Metal	
Number of pins	19 (18 + PE)	
Cable diameter	10 - 14	mm
Nominal voltage max.	32	V AC/DC
Degree of protection according to IEC 60529 (inserted)	IP 65	
Connection	19 Crimp contacts 0.75 to 1.0 mm ²	



Built-in LED		
Parameter	Value	Unit
Material of housing	ABS/PC blend, black	
Material of cap	Transparent polycarbonate	
Degree of protection (installed)	IP 65	
Ambient temperature	-20 ... +50	°C
Connection	2 wires	
Mounting	M20 x 1.5	
Operating voltage	24	V DC
Switch-on current	< 0.5	A
Current consumption	45	mA