

83894 metal interlock switches 83894121 / 83894131 3-pole Part number 83894121



- Monitoring of moving guards for machines with a stopping time which is greater than the time taken to access the danger zone
- Locked by removing the voltage, unlocked by applying voltage to the electromagnet
- Metal bodies and heads
- Heads have 4 possible positions at 90°
- Positive opening contacts

Part numbers

	Type	Type of contacts	Action
83894121	83894121 / 83894131 3-pole	NC+NO+NO (2NO break before make)	Slow action

Specifications

Environment

Conforming to standards Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no.14, JIS C4520 (See P.3/4)
Conforming to standards Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 2920
Certifications	UL, CSA
Protective treatment in normal operation	"TC"
Temperature Use (°C)	-25 → +70
Storage temperature (°C)	-40 → +70
Vibration resistance according to IEC/EN 60068-2-6	
Schok resistance according to IEC 28-2-27	
Degree of protection according to IEC 529 and IEC 947-5-1	IP 67
Cable entry	One threaded hole for cable gland 13

Electrical characteristics

Assigned working characteristics	AC 15 B300 Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A DC 13 Q300 Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A
Assigned insulation voltage according to IEC 947-5-1	Ui = 500 V
Assigned insulation voltage according to UL 508, CSA C22-2 no.14	Ui = 300 V
Assigned impulse voltage according to IEC 947-5-1	Uimp = 4 KV
Thermal rating according to IEC 947-5-1	Ithe = 6 A
Electric shock protection Class 2 according to IEC 536	■
Resistance between terminals according to IEC 954-5-4	≤ 30 mΩ
Protection against short circuits	Cartridge fuse 10 A gG (gl)
Connection Screw clamp terminals	■
Clamping capacity with or without ferrule	min. 1 x 0,5 mm ² , max. 1,5 mm ²
Electrical life according to IEC 947-5-1 appendix C	

Environment

Electromagnet supply voltage (50/60 Hz in AC)	120 V AC / DC
Maximum actuation speed	0,5 m/s
Minimum actuation speed	0,01 m/s
Resistance to removal of key	2000 N
Mechanical life (operating cycles)	10 ⁶
Minimum operating frequency (operating cycles per hour)	600
Minimum positive opening force	20 N
Cable entry according to NFC 68 300	2 PG 13
Weight (g)	1140



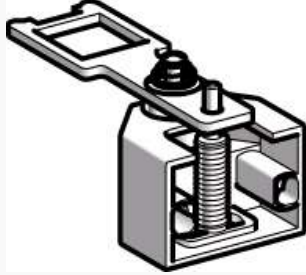
Electromagnet characteristics

Operating factor	100 %
Voltage limits	-20 % < +10 %
Service life	20 000
Consumption Inrush	10 VA
Consumption Sealed	10 VA

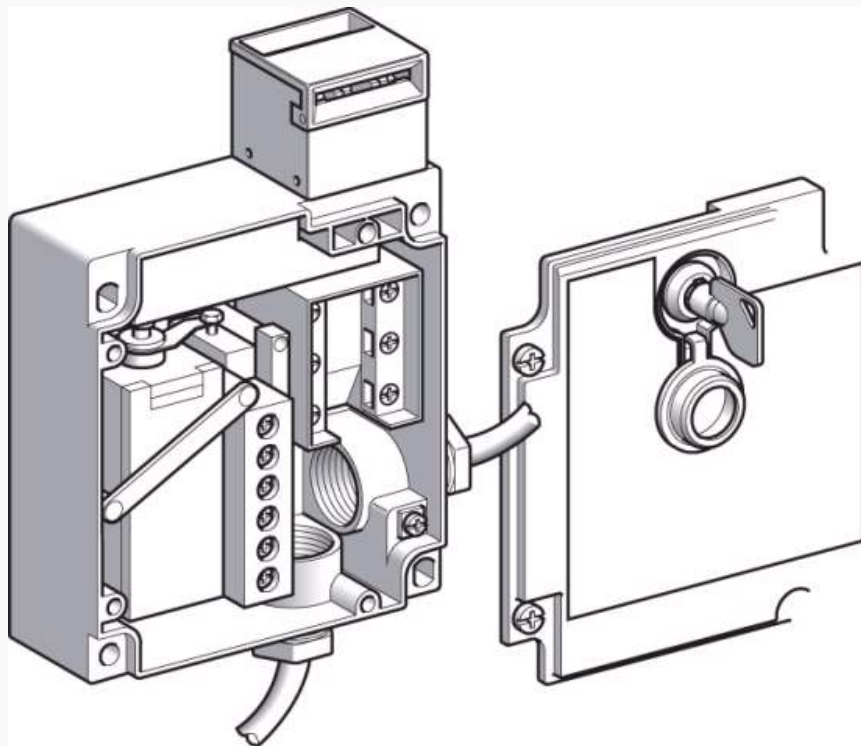
Indicator characteristics

Assigned insulation voltage according to IEC 947-5-1	250 V
Current consumption (mA)	7 mA
Assigned working voltage AC or DC	110 V / 240 V
Voltage limits AC or DC (including ripple)	95...264 V
Service life (h)	100 000

Accessories

Symbol	Accessories	Code
	Straight key	79 214 578
	Wide key	79 214 579
	Flexible key	79 214 580

Principles

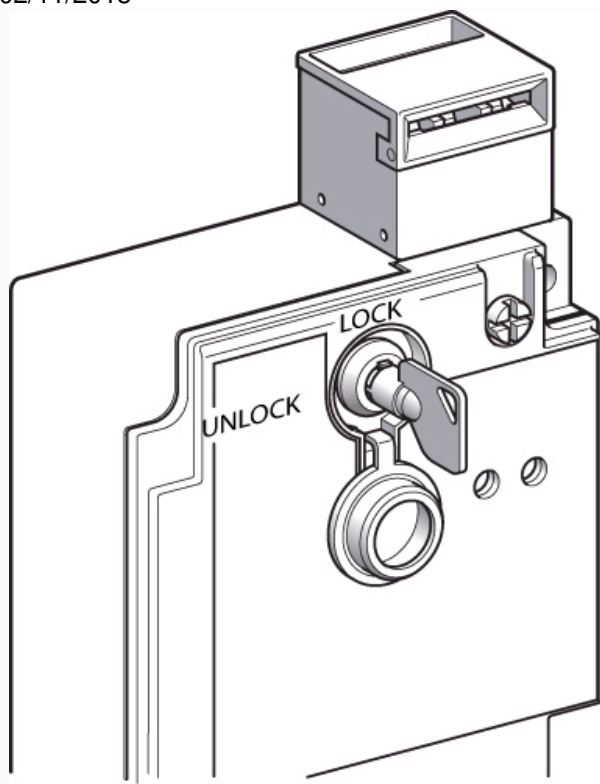


Type 83 894 1 safety switches are fitted with an electromagnet for locking/unlocking the guard.

With the guard locked, the force required to remove the key is **200 daN**.

In addition to the 3-pole contact element actuated by the key, 83 894 2 limit switches also have a positive break type **"NC + NO"** contact element, **actuated by the electromagnet**. The "NC" contact is integrated in the machine safety circuit, and the "NO" contact indicates the position of the electromagnet.

Principles

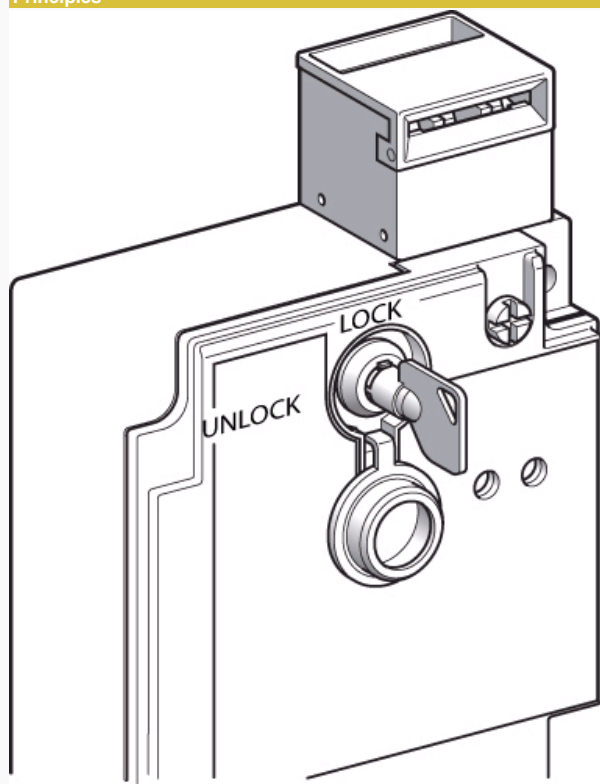


Type 83 894 1 safety switches are supplied with a key-operated lock which can be used to unlock the moving guard, bypassing the electromagnet.

Unlocking using a key-operated lock is recommended in the following cases :

- machine maintenance (if the key is turned to "UNLOCK" and then removed, this will prevent the machine from restarting accidentally, therefore ensuring the safety of maintenance personnel).
 - mains failure
 - problem with unlocking (locking cannot be released : fail-safe condition). Unlocking by applying voltage to the electromagnet always takes priority over unlocking using a key-operated lock.
- The locking mechanism for standard devices allows the key to be removed in the "LOCK" and "UNLOCK" positions.

Principles



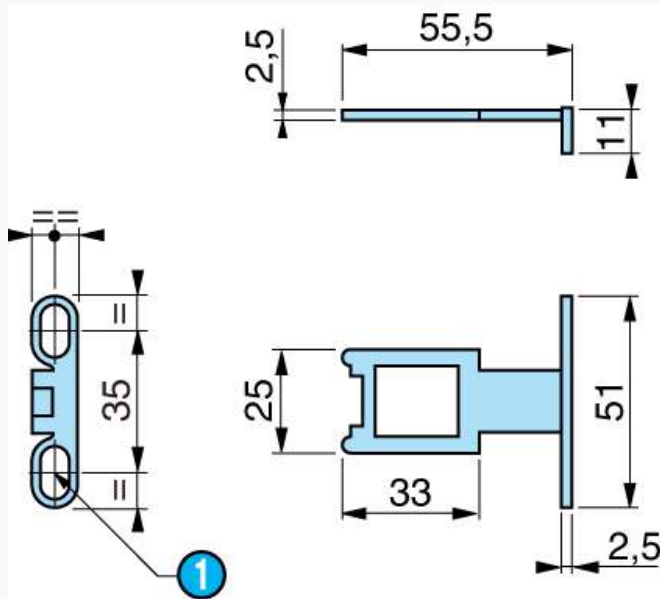
Power supply for the electromagnet on 83 894 1

The electromagnet for type 83 894 1 safety switches runs on D.C. and is therefore particularly reliable. As it is protected by a **bridge rectifier** A.C. or D.C. supplies can be used (24 V, 48 V, 120 V or 230 V).

Dimensions (mm)

Actuators

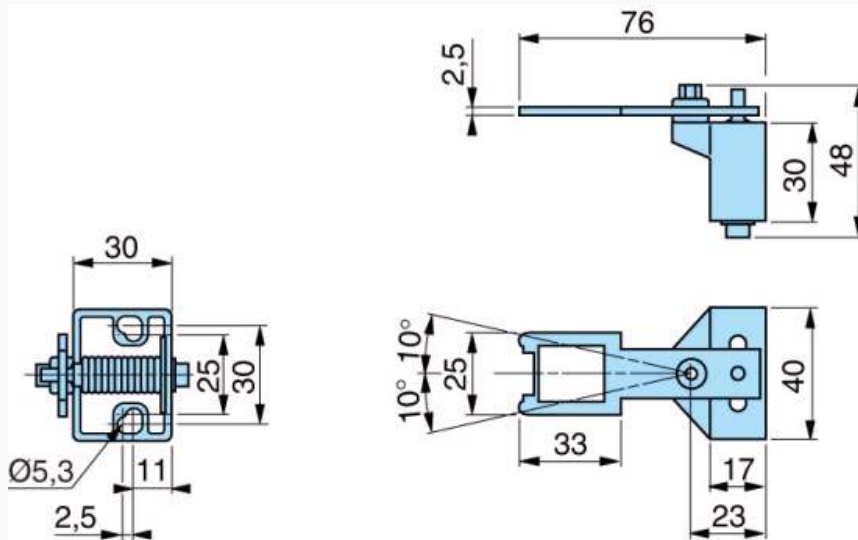
Wide key
79 214 579



Dimensions (mm)

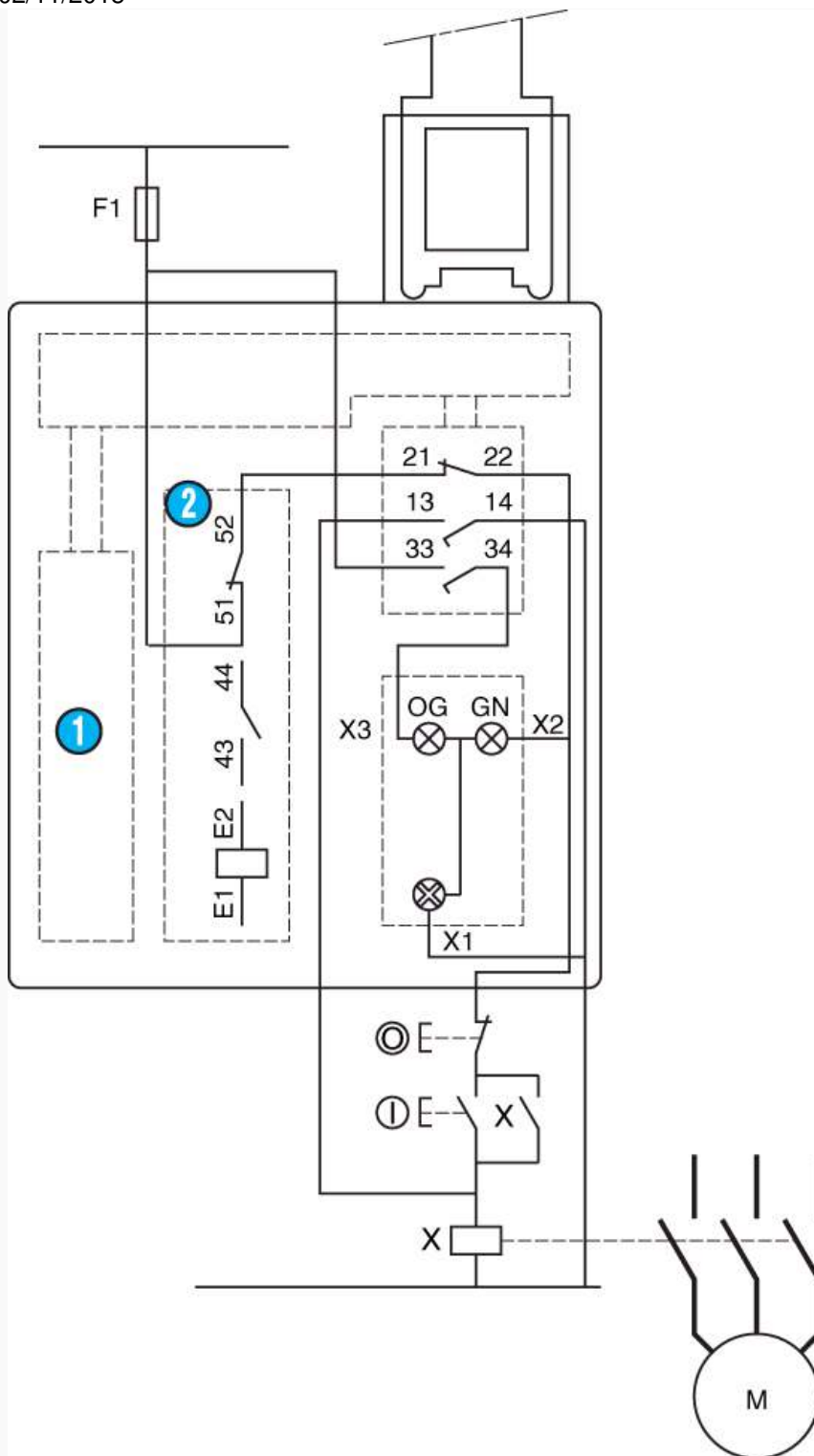
Actuators

Flexible key
79 214 580



Connections

Category 1 according to EN 954-1

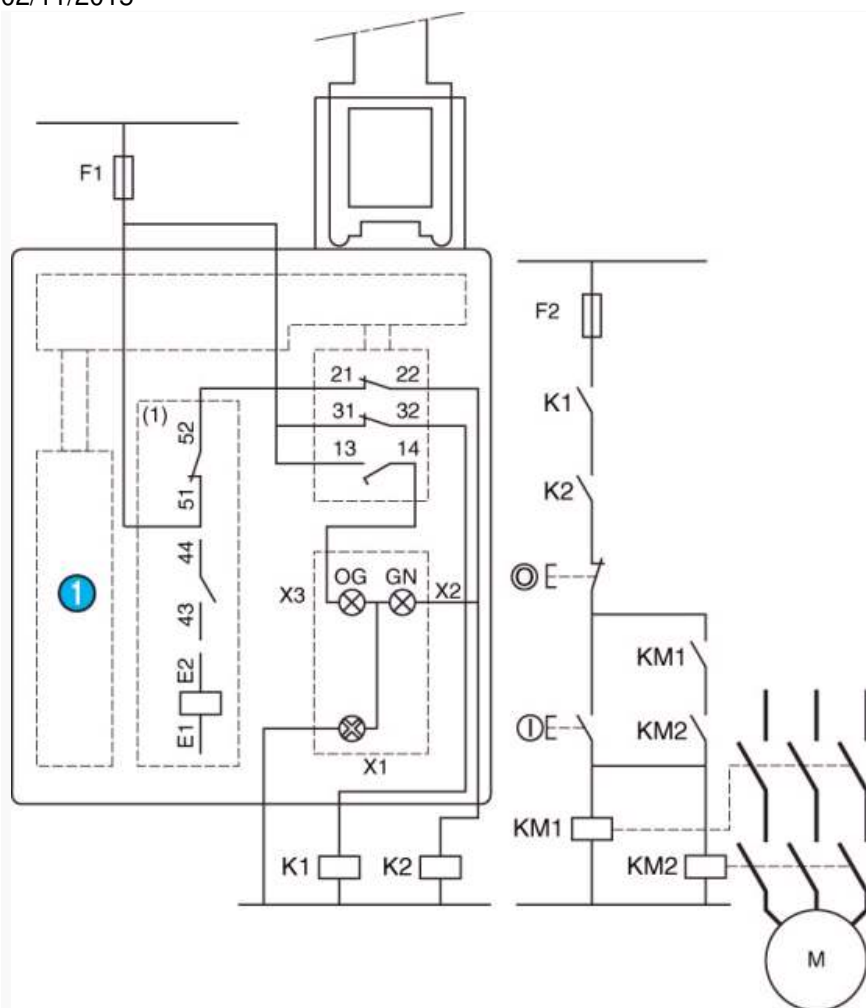


Examples of wiring diagrams with a fuse to provide protection against short-circuits in the cable or tampering. Locking by removal of voltage "NC+NO+NO" 83 894 12

N°	Legend
①	Electromagnet
②	Auxiliary contact
	E1-E2 : Power supply for electromagnet
	43-44 : Electromagnet signal contact
	13-14 : Safety contact available for redundancy

Connections

Category 3 according to EN 954-1



Examples of wiring diagrams with redundancy of the switch contacts, without monitoring. Locking by removal of the voltage "NC+NC+NO" 83 894 13

N°	Legend
①	Electromagnet
	33-X1 : LED (orange) : key not inserted
	51-X1 : LED (green) : key inserted and locked
	21-52 : Safety pre-wiring