LG Safety Switches
with solenoid & separate actuator

- Actuator holding force F_{1max}: 2800 N
- 30 contact blocks with 4 contacts
- Metal housing, three conduit entries M20
- Protection degree IP67
- Versions with key release and emergency release button
- 4 stainless steel actuators
- Orientable head and devices, not detachable
- Signalling LED
- Operation with energised or de-energised solenoid

Approval UL: E146236

LG Series

Options & Ordering Codes

Note: The feasibility of a code number does not mean the effective availability of a product

LG	MSA	S1D	0	A	-	BF30	F20	G	X900

Integrated Contact Blocks

Solenoid Operated	Actuator Operated	
1NO+1NC	1NO+1NC	MSA
2NC	1NO+1NC	MSB
3NC	1NC	MSC
1NO+1NC	2NC	MSD
1NO+2NC	1NC	MSE
1NO+2NC	1NO	MSF
2NC	2NC	MSG
4NC	/	MSH
3NC	1NO	MSI
2NO+1NC	1NC	MSL
2NO+1NC	1NO	MSM
1NO+1NC	2NO	MSN
1NC	3NC	MSP
2NO+2NC	/	MSR
1NC	1NC+2NO	MSS
1NC	2NC+1NO	MST
/	4NC	MSU
2NC	2NO	MSV
1NO	3NC	MSX
1NO	1NO+2NC	MSY

Other options are available. Please contact IMO for more information.

Working Principle

Locked actuator with de-energised solenoid	S1D
Locked actuator with energised solenoid	S1E
Locked actuator with de-energised solenoid, with key release	S5D
Locked actuator with de-energised solenoid, with key release and emergency release button	S6D
Locked actuator with de-energised solenoid, with emergency release button	S7D
Locked actuator with energised solenoid, with emergency release button	S7E

Solenoid Supply Voltage

24VAC/DC (-10% to +10%)	0
120VAC/DC (-15% to +10%)	1
230VAC (-15% to +10%)	2
12VDC (-15% to +20%)	3

Signalling LED

A	2 Green LED on by powered solenoid
B	With Red and Green LED, not connected
C	With Orange and Green LED, not connected
Z	Without LED

Release Button Length

	for maximum 15mm wall thickness (standard)
BF30	for maximum 30mm wall thickness
BF40	for maximum 40mm wall thickness
BF60	for maximum 60mm wall thickness
BFAD	adjustable, for wall thickness from 60mm to 500mm

Actuators

	Without actuator (standard)
F20	With flat actuator (AC-KEYF20)
F21	With 90° actuator (AC-KEYF21)
F22	With 90° actuator (AC-KEYF22)
F28	With flat actuator and rubber mounting (AC-KEYF28)

Contacts Type

	Silver contacts (standard)
G	Gold plated silver contacts (1 μm)

Preinstalled Connectors

	No Connectors (standard)
X900	12P M23 metal connector, bottom
X901	12P M23 metal connector, right
X902	12P M23 metal connector, left

Specifications

For safety applications up to:	SIL 3 acc. to EN 62061 PL e acc. to EN ISO 13849-1
Interlock with mechanical lock, coded:	type 2 acc. to EN ISO 14119
Coding level:	Low acc. to EN ISO 14119
Safety parameters:	
B_{10d}:	5,000,000 for NC contacts
Service life:	20 years
Ambient temperature:	-25°C … +60°C
Max. actuation frequency:	600 operating cycles[1]/hour
Mechanical endurance:	1 million operating cycles[1]
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s
Maximum force before breakage F_{1max}:	2800 N acc. to EN ISO 14119
Max. holding force F_{Zh}:	2150 N acc. to EN ISO 14119
Maximum play of locked actuator:	4.5 mm
Released actuator extraction force:	30 N

Housing

Metal head and housing, baked powder coating.

Three threaded conduit entries:	M20x1.5 (standard)
Protection degree:	IP67 acc. to EN 60529 with cable gland having equal or higher protection degree

Cable cross section (flexible copper wire)

Cable cross section (flexible copper strands)

Contact blocks:	min.	1 x 0.34 mm² (1 x AWG 22)
	max.	2 x 1.5 mm² (2 x AWG 16)

Solenoid

Duty cycle:	100% ED
Solenoid protection 12 V:	type gG fuse 1 A
Solenoid protection 24 V:	type gG fuse 0.5 A
Solenoid protection 120 V:	fuse 315 mA, delayed
Solenoid protection 230 V:	fuse 315 mA, delayed
Solenoid consumption:	9 VA

In conformity with standards

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN 61000-6-2, EN 61000-6-3, BG-GS-ET-15, UL 508, CSA 22.2 N. 14.

In conformity with requirements requested by

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and EMC Directive 2004/108/EC.

Positive contact opening in conformity with standards

IEC 60947-5-1, EN 60947-5-1.

Electrical data

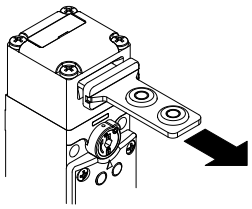
Utilization category

without connector	Thermal current (Ith):	10 A	Alternating current: AC15 (50÷60 Hz) Ue (V) 120 250 400 Ie (A) 6 5 3 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 3 0.7 0.4
	Rated insulation voltage (Ui):	400 Vac 300 Vdc	
	Rated impulse withstand voltage (U_{imp}):	6 kV	
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	
	Protection against short circuits:	type gG fuse 10 A 500 V	
	Pollution degree:	3	
with M23 connector 12 poles	Thermal current (Ith):	8 A	Alternating current: AC15 (50÷60 Hz) Ue (V) 120 250 Ie (A) 6 5 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 3 0.7 0.4
	Rated insulation voltage (Ui):	250 Vac 300 Vdc	
	Protection against short circuits:	type gG fuse 8 A 500 V	
	Pollution degree:	3	
with M12 connector 12 poles	Thermal current (Ith):	1.5 A	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 Ie (A) 1.5 Direct current: DC13 Ue (V) 24 Ie (A) 1.5
	Rated insulation voltage (Ui):	30 Vac 36 Vdc	
	Protection against short circuits:	type gG fuse 1.5 A	
	Pollution degree:	3	

Description

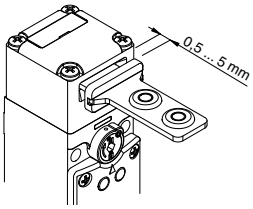
These switches are used on machines where the hazardous conditions remain for a while, even after the machines have been switched off, for example because of mechanical inertia of pulleys, saw disks, parts under pressure or with high temperatures. They can also be used when it is necessary to control machine guards allowing the opening of protections only under specific conditions.
The versions with solenoid actuated NC contacts are considered interlocks with locking in accordance with ISO 14119, and the product is marked on the side with the symbol shown.

Holding force of the locked actuator



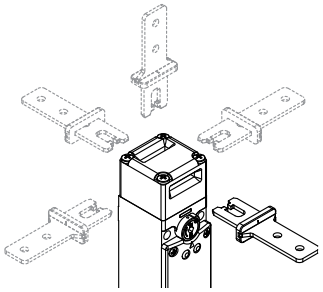
The strong interlocking system guarantees a maximum actuator holding force of F_{1max} = 2800 N.

Wide-ranging actuator travel



The head of this switch has been designed to have a certain amount of movement tolerance for oscillation along the direction of insertion without causing unwanted machine shutdown caused by switch activation. This feature is available with all door interlock actuators, in order to ensure maximum device reliability.

Orientable heads and devices

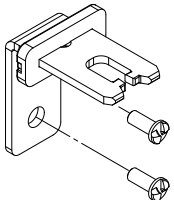


The head can be easily turned to each of the four sides of the switch by unfastening the two fixing screws.
The auxiliary key release device can be rotated in 90° steps enabling the switch to assume 32 different configurations.

Contact blocks with 4 contacts

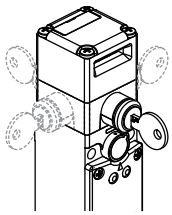
Innovative contact block with 4 contacts, available in different contact configurations to monitor the actuator or the solenoid (patented). The unit is supplied with captive screws and self-lifting plates. Removable finger protection for eyelet terminals.
Highly reliable electric contacts with four support points and double interruption

Safety screws for actuators



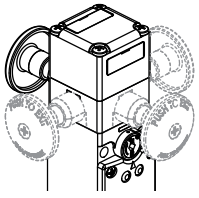
As required by ISO 14119, the actuator must be fixed immovably to the door frame. Pan head safety screws with one-way fitting are available for this purpose. With this screw type, the actuators cannot be removed or tampered with using common tools.

Key release device with orientable lock



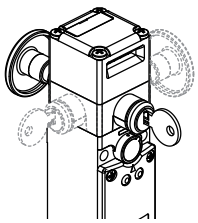
The auxiliary key release device is used to allow the maintenance or the entry into the machinery to authorized personnel only. Rotating the key, will activate the solenoid and release the actuator. The device can be rotated allowing for the installation of the safety switch inside the machinery and making the release device accessible outside the protection.
In this way, the switch offers improved protection against possible tampering whilst the external side/surface of the machinery remains flat.

Emergency release button



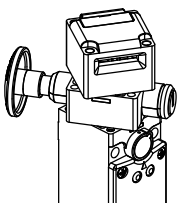
This device is used when the safety switch controls hazardous areas where operators may physically enter with all their body. The release button, oriented towards inside the machinery, allows the exit of the operator accidentally trapped also in case of possible black-out. Pushing the button, it will be actuated the same function of the auxiliary release device. To reset the switch, just return the button to its initial position. The emergency button can be rotated, is available with different lengths and it is fixed to the switch by a screw, so to allow the installation of the switch inside or outside the guards.

Key release device and emergency release button



This device performs the two above mentioned functions at the same time. Also in this case the device can be rotated and the release button can be ordered with different lengths. The activation of the button has the priority on the lock, that is with the closed lock it is still possible to press the button and release the switch. To reset the switch it is necessary to bring lock and button to their initial position.

Non detachable heads and devices

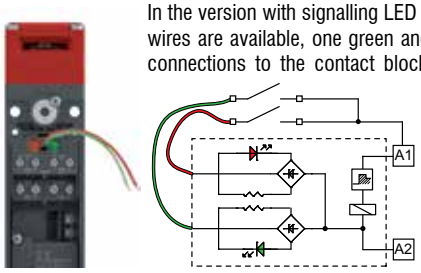


The head and the release device can be rotated, but cannot be detached. This reduces the risk of damage, loss of small parts, and dirt penetration of the unit.

Signalling LED type A

In the version with signalling LED type A, two green LEDs are switched-on directly by the solenoid power supply. Wiring is not necessary.

Signalling LED type B



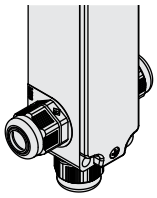
In the version with signalling LED type B, two LED connection wires are available, one green and one red. Through suitable connections to the contact block, it is possible to see the different states of the switch from the exterior.

Protection degree IP67

IP67

These devices are designed to be used in the toughest environmental conditions and they pass the IP67 immersion test acc. to IEC 60529.
They can therefore be used in all environments where the maximum protection of the housing is required.

Three conduit entries



The switch is equipped with three cable entries in different directions. This allows its application in series connections or in narrow places.

Extended temperature range

-40°C

This range of switches is also available in a special version with an ambient operating temperature range of -40°C to +80°C.
They can be used for applications in cold stores, sterilisers and other devices with low temperature environments. Special materials that have been used to realize these versions, maintain unchanged their features also in these conditions, widening the installation possibilities.

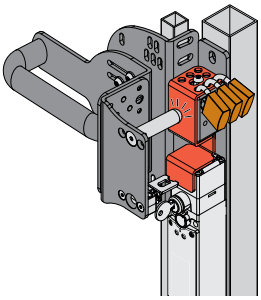
Sealable auxiliary release device

Versions with working principle D are supplied with a sealable auxiliary release device used by technicians during the installation or to access the machine in case of black-out. The auxiliary release device acts on the switch exactly as if the solenoid was energised, actuating therefore also the corresponding electrical contacts. Can only be actuated with a couple of tools, this ensures adequate resistance to tampering. If required it can be sealed by means of the hole provided.

Laser engraving

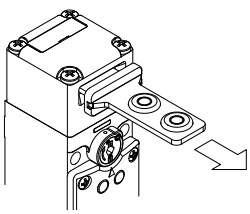
All the LG series switches are indelibly marked with a dedicated laser system that allows the marking to be also suitable for extreme environments. This system that does not use labels, prevents the loss of plate data and the marking is more resistant over time.

Access monitoring



These switches alone cannot protect operators or maintenance personal when they have entered the hazardous area, because, a voluntary closing of the gate with fitted protection switch behind them could allow the machine to restart. To make sure this can't happen, a padlock able device of the type AC-KB2 can be used to lock the actuator entry into the switch. Alternatively, the gate can be fitted with an IMO entry handle of the type AC-AP-P11B-200P.

Holding force of the unlocked actuator



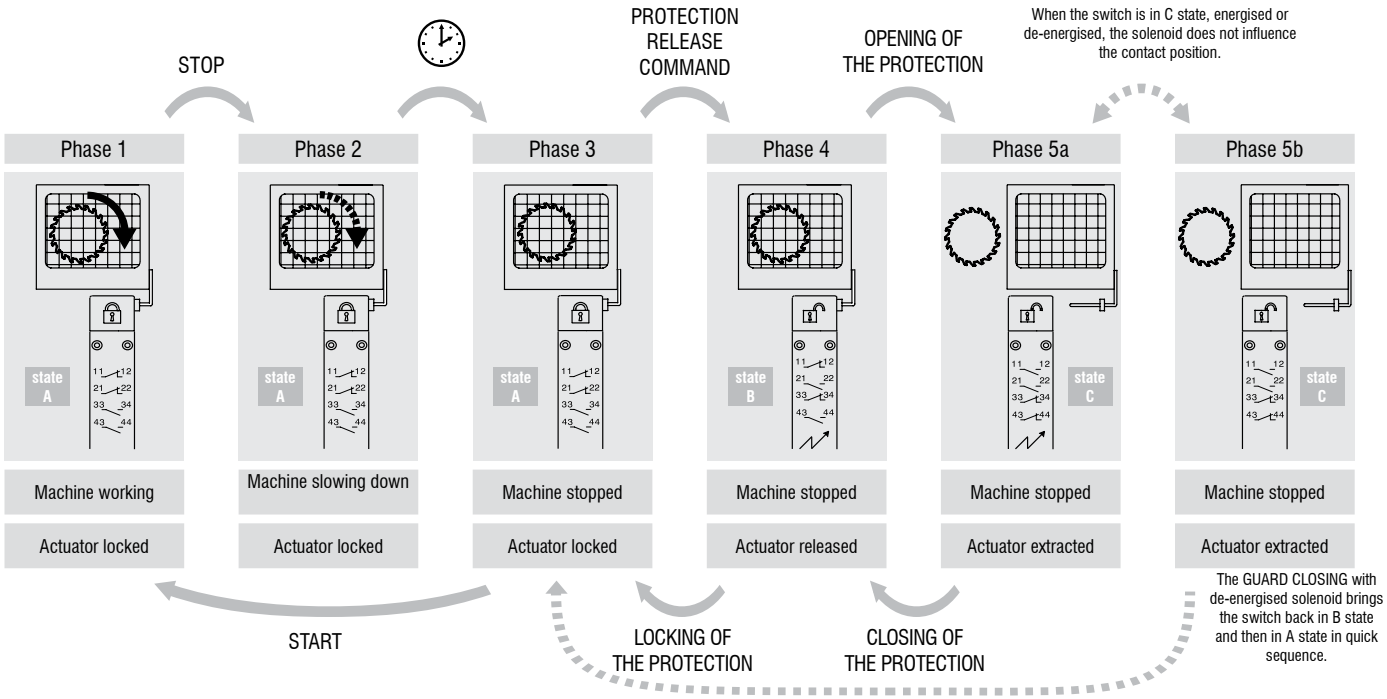
The inside of each switch features a device which holds the actuator in its closed position. Ideal for all those applications where several doors are unlocked simultaneously, but only one is actually opened. The device keeps all the unlocked doors in their position with a retaining force of 30 N~, stopping any vibrations or gusts of wind from opening them.

Working principle

The working principle of these safety switches allows three different working states:
state A: with inserted and locked actuator
state B: with inserted actuator, not locked
state C: with extracted actuator
All or some of these states may be controlled through NO contacts or positive opening NC contacts of the internal contact block. In detail, contact blocks that have electric contacts marked with the symbol of the solenoid ( ) are switched in the transition between the state A and state B, while the electric contacts marked with the symbol of the actuator ( ) are switched between state B and state C:

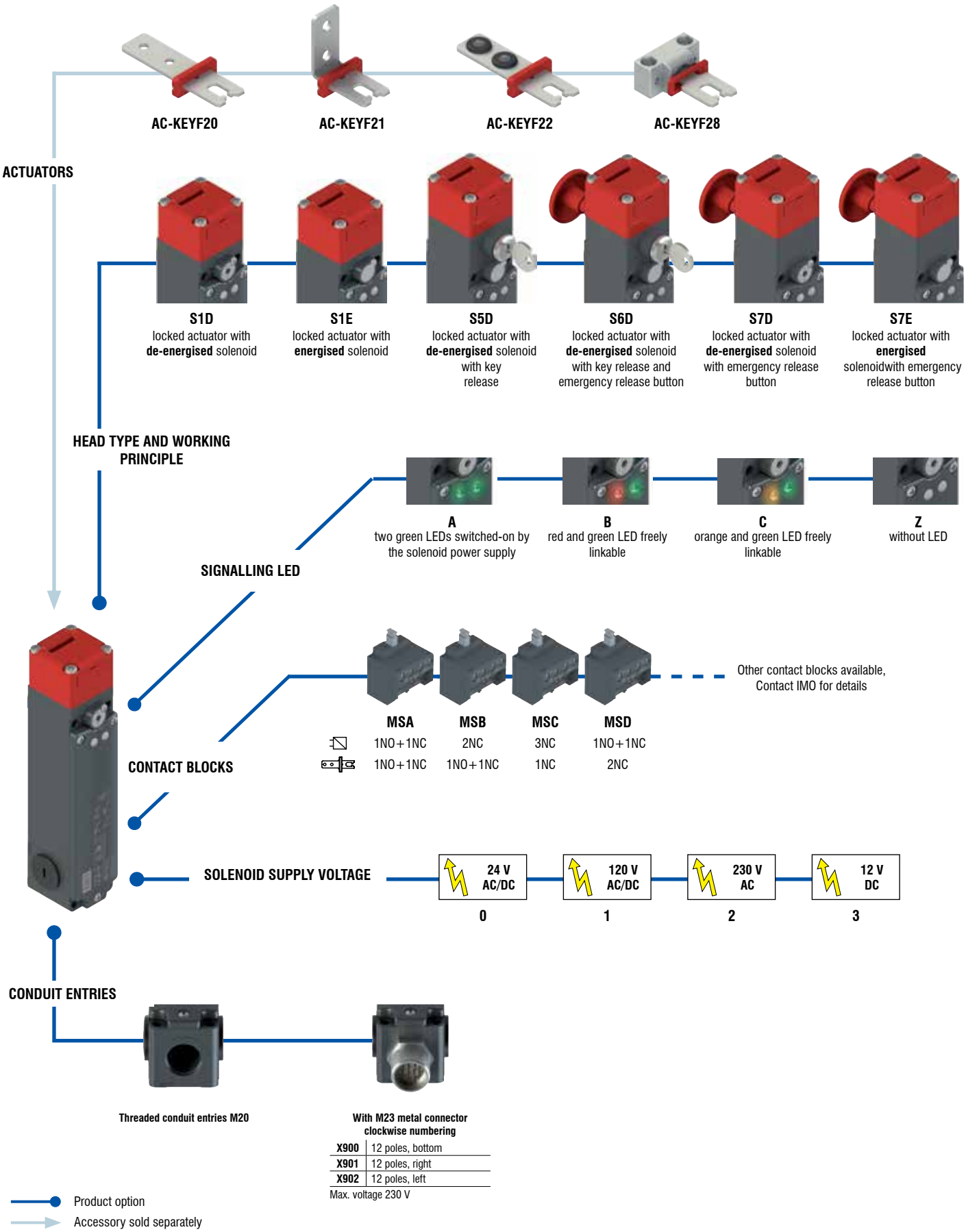
Working principle
It is also possible to choose between two working principles for the actuator locking:
- **Working principle D**: Actuator locked with de-energised solenoid. Actuator release is obtained by power supply to the solenoid (see example of working cycle steps).
- **Working principle E**: Actuator locked with energised solenoid. The release of the actuator is obtained by power-off to the solenoid. It is advisable to use this version under special conditions because a blackout will allow the immediate opening of the protection.

Example of working cycle steps with LG MSAS1D0A-F21 (switch with working principle D)

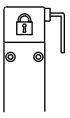
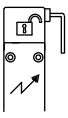
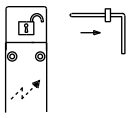
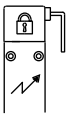
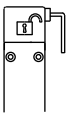
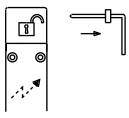


IMO

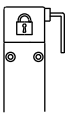
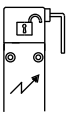
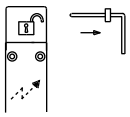
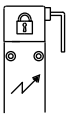
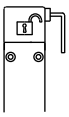
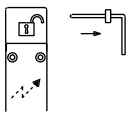
Selection diagram



Contact positions related to switch states

Operating state	Working principle D locked actuator with de-energised solenoid state A	 state B	 state C	Working principle E locked actuator with energised solenoid state A	 state B	 state C
Actuator	Inserted and locked	Inserted and released	Extracted	Inserted and locked	Inserted and released	Extracted
Solenoid	De-energised	Energised	-	Energised	De-energised	-
						
LG MSA••••• 1NO+1NC controlled by the solenoid 1NO+1NC controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44
LG MSB••••• 2NC controlled by the solenoid 1NO+1NC controlled by the actuator	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44
LG MSC••••• 3NC controlled by the solenoid 1NC controlled by the actuator	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
LG MSD••••• 1NO+1NC controlled by the solenoid 2NC controlled by the actuator	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42
LG MSE••••• 1NO+2NC controlled by the solenoid 1NC controlled by the actuator	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44
LG MSF••••• 1NO+2NC controlled by the solenoid 1NO controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44
LG MSG••••• 2NC controlled by the solenoid 2NC controlled by the actuator	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
LG MSH••••• 4NC controlled by the solenoid	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
LG MSI••••• 3NC controlled by the solenoid 1NO controlled by the actuator	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44
LG MSL••••• 2NO+1NC controlled by the solenoid 1NC controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44

Contact positions related to switch states

Operating state	Working principle D locked actuator with de-energised solenoid state A	state B	state C	Working principle E locked actuator with energised solenoid state A	state B	state C
Actuator	Inserted and locked	Inserted and released	Extracted	Inserted and locked	Inserted and released	Extracted
Solenoid	De-energised	Energised	-	Energised	De-energised	-
						
LG MSM••••• 2NO+1NC controlled by the solenoid 1NO controlled by the actuator	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44
LG MSN••••• 1NO+1NC controlled by the solenoid 2NO controlled by the actuator	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44	13 14 21 22 33 34 43 44
LG MSP••••• 1NC controlled by the solenoid 3NC controlled by the actuator	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
LG MSR••••• 2NO+2NC controlled by the solenoid	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44
LG MSS••••• 1NC controlled by the solenoid 2NO+1NC controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44
LG MST••••• 1NC controlled by the solenoid 1NO+2NC controlled by the actuator	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44	11 12 21 22 31 32 43 44
LG MSU••••• 4NC controlled by the actuator	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
LG MSV••••• 2NC controlled by the solenoid 2NO controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44
LG MSX••••• 1NO controlled by the solenoid 3NC controlled by the actuator	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42
LG MSY••••• 1NO controlled by the solenoid 1NO+2NC controlled by the actuator	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44	11 12 21 22 33 34 43 44

Dimensional drawings

All measures in the drawings are in mm

Contact type:

L = slow action

Contact blocks

		Working principle D, supplied with sealable auxiliary release device and without actuator				Working principle E, supplied without actuator				Working principle D, supplied with key release and without actuator			
MSA	L	LGMSAS1D0A		1NO+1NC	1NO+1NC	LGMSAS1E0A		1NO+1NC	1NO+1NC	LGMSAS5D0A		1NO+1NC	1NO+1NC
MSB	L	LGMSBS1D0A		2NC	1NO+1NC	LGMSBS1E0A		2NC	1NO+1NC	LGMSBS5D0A		2NC	1NO+1NC
MSC	L	LGMSCS1D0A		3NC	1NC	LGMSCS1E0A		3NC	1NC	LGMSCS5D0A		3NC	1NC
MSD	L	LGMSDS1D0A		1NO+1NC	2NC	LGMSDS1E0A		1NO+1NC	2NC	LGMSDS5D0A		1NO+1NC	2NC
MSE	L	LGMSES1D0A		1NO+2NC	1NC	LGMSES1E0A		1NO+2NC	1NC	LGMSES5D0A		1NO+2NC	1NC
MSF	L	LGMSFS1D0A		1NO+2NC	1NO	LGMSFS1E0A		1NO+2NC	1NO	LGMSFS5D0A		1NO+2NC	1NO
MSG	L	LGMSGS1D0A		2NC	2NC	LGMSGS1E0A		2NC	2NC	LGMSGS5D0A		2NC	2NC
MSH	L	LGMSHS1D0A		4NC	/	LGMSHS1E0A		4NC	/	LGMSHS5D0A		4NC	/
MSI	L	LGMSIS1D0A		3NC	1NO	LGMSIS1E0A		3NC	1NO	LGMSIS5D0A		3NC	1NO
MSL	L	LGMSLS1D0A		2NO+1NC	1NC	LGMSLS1E0A		2NO+1NC	1NC	LGMSLS5D0A		2NO+1NC	1NC
MSM	L	LGMSMS1D0A		2NO+1NC	1NO	LGMSMS1E0A		2NO+1NC	1NO	LGMSMS5D0A		2NO+1NC	1NO
MSN	L	LGMSNS1D0A		1NO+1NC	2NO	LGMSNS1E0A		1NO+1NC	2NO	LGMSNS5D0A		1NO+1NC	2NO
MSP	L	LGMSPS1D0A		1NC	3NC	LGMSPS1E0A		1NC	3NC	LGMSPS5D0A		1NC	3NC
MSR	L	LGMSRS1D0A		2NO+2NC	/	LGMSRS1E0A		2NO+2NC	/	LGMSRS5D0A		2NO+2NC	/
MSS	L	LGMSSS1D0A		1NC	2NO+1NC	LGMSSS1E0A		1NC	2NO+1NC	LGMSSS5D0A		1NC	2NO+1NC
MST	L	LGMSTS1D0A		1NC	1NO+2NC	LGMSTS1E0A		1NC	1NO+2NC	LGMSTS5D0A		1NC	1NO+2NC
MSU	L	LGMSUS1D0A			4NC	LGMSUS1E0A			4NC	LGMSUS5D0A			4NC
MSV	L	LGMSVS1D0A		2NC	2NO	LGMSVS1E0A		2NC	2NO	LGMSVS5D0A		2NC	2NO
MSX	L	LGMSXS1D0A		1NO	3NC	LGMSXS1E0A		1NO	3NC	LGMSXS5D0A		1NO	3NC
MSY	L	LGMSYS1D0A		1NO	1NO+2NC	LGMSYS1E0A		1NO	1NO+2NC	LGMSYS5D0A		1NO	1NO+2NC
Min. force		30 N (60 N ⊖)				30 N (60 N ⊖)				30 N (60 N ⊖)			
Travel diagrams		see overleaf - group 1				see overleaf - group 1				see overleaf - group 1			

Legend: ⊖ With positive opening according to EN 60947-5-1, interlock with lock monitoring in accordance with EN ISO 14119

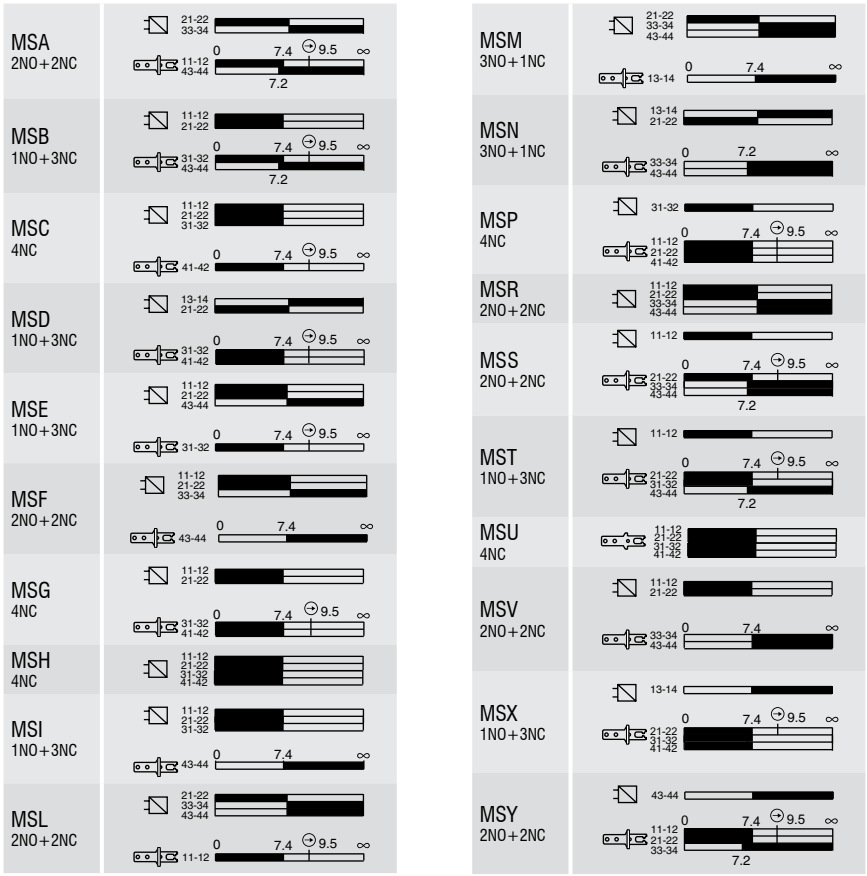
Contact type:

L = slow action

Contact blocks

		Working principle D, supplied with key release, emergency release button, without actuator			Working principle D, supplied with emergency release button, without actuator			Working principle E, supplied with emergency release button, without actuator		
MSA	L	LGMSAS6D0A	1NO+1NC	1NO+1NC	LGMSAS7D0A	1NO+1NC	1NO+1NC	LGMSAS7E0A	1NO+1NC	1NO+1NC
MSB	L	LGMSBS6D0A	2NC	1NO+1NC	LGMSBS7D0A	2NC	1NO+1NC	LGMSBS7E0A	2NC	1NO+1NC
MSC	L	LGMSCS6D0A	3NC	1NC	LGMSCS7D0A	3NC	1NC	LGMSCS7E0A	3NC	1NC
MSD	L	LGMSDS6D0A	1NO+1NC	2NC	LGMSDS7D0A	1NO+1NC	2NC	LGMSDS7E0A	1NO+1NC	2NC
MSE	L	LGMSES6D0A	1NO+2NC	1NC	LGMSES7D0A	1NO+2NC	1NC	LGMSES7E0A	1NO+2NC	1NC
MSF	L	LGMSFS6D0A	1NO+2NC	1NO	LGMSFS7D0A	1NO+2NC	1NO	LGMSFS7E0A	1NO+2NC	1NO
MSG	L	LGMSGS6D0A	2NC	2NC	LGMSGS7D0A	2NC	2NC	LGMSGS7E0A	2NC	2NC
MSH	L	LGMSHS6D0A	4NC	/	LGMSHS7D0A	4NC	/	LGMSHS7E0A	4NC	/
MSI	L	LGMSIS6D0A	3NC	1NO	LGMSIS7D0A	3NC	1NO	LGMSIS7E0A	3NC	1NO
MSL	L	LGMSLS6D0A	2NO+1NC	1NC	LGMSLS7D0A	2NO+1NC	1NC	LGMSLS7E0A	2NO+1NC	1NC
MSM	L	LGMSMS6D0A	2NO+1NC	1NO	LGMSMS7D0A	2NO+1NC	1NO	LGMSMS7E0A	2NO+1NC	1NO
MSN	L	LGMSNS6D0A	1NO+1NC	2NO	LGMSNS7D0A	1NO+1NC	2NO	LGMSNS7E0A	1NO+1NC	2NO
MSP	L	LGMSPS6D0A	1NC	3NC	LGMSPS7D0A	1NC	3NC	LGMSPS7E0A	1NC	3NC
MSR	L	LGMSRS6D0A	2NO+2NC	/	LGMSRS7D0A	2NO+2NC	/	LGMSRS7E0A	2NO+2NC	/
MSS	L	LGMSSS6D0A	1NC	2NO+1NC	LGMSSS7D0A	1NC	2NO+1NC	LGMSSS7E0A	1NC	2NO+1NC
MST	L	LGMSTS6D0A	1NC	1NO+2NC	LGMSTS7D0A	1NC	1NO+2NC	LGMSTS7E0A	1NC	1NO+2NC
MSU	L	LGMSUS6D0A		4NC	LGMSUS7D0A		4NC	LGMSUS7E0A		4NC
MSV	L	LGMSVS6D0A	2NC	2NO	LGMSVS7D0A	2NC	2NO	LGMSVS7E0A	2NC	2NO
MSX	L	LGMSXS6D0A	1NO	3NC	LGMSXS7D0A	1NO	3NC	LGMSXS7E0A	1NO	3NC
MSY	L	LGMSYS6D0A	1NO	1NO+2NC	LGMSYS7D0A	1NO	1NO+2NC	LGMSYS7E0A	1NO	1NO+2NC
Min. force		30 N (60 N →)			30 N (60 N →)			30 N (60 N →)		
Travel diagrams		see overleaf - group 1			see overleaf - group 1			see overleaf - group 1		

Travel diagrams table



Legend:

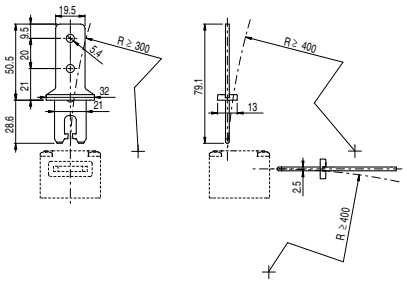
- Closed contact
- Open contact
- Contacts activated by the actuator
- Contacts activated by the solenoid
- Positive opening travel

All measures in the drawings are in mm

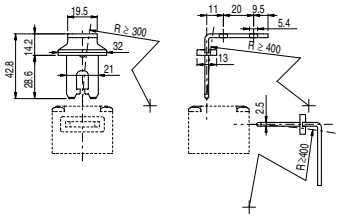
Stainless steel actuators

IMPORTANT: These actuators must be used with items of the LG series only (e.g. LGMSAS1D0A).
Low level of coding acc. to EN ISO 14119.

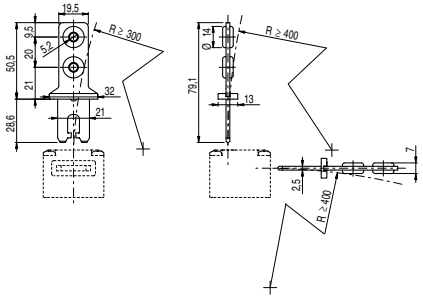
Article	Description
AC-KEYF20	Straight actuator



Article	Description
AC-KEYF21	Angled actuator



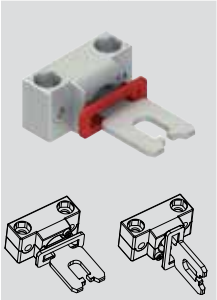
Article	Description
AC-KEYF22	Actuator with rubber mountings

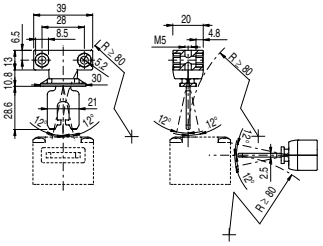


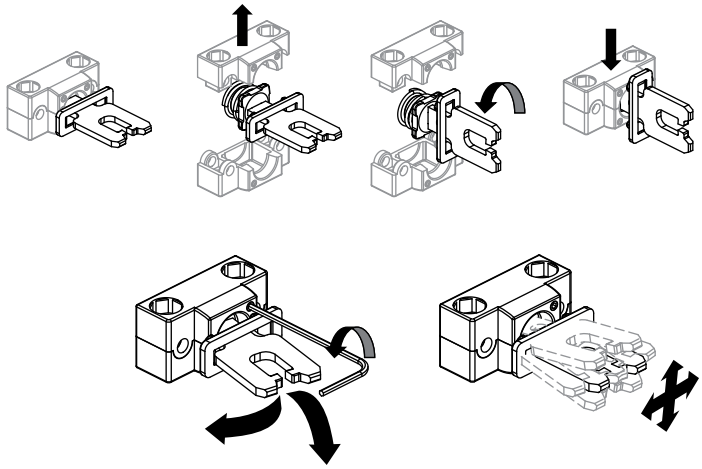
Universal actuator AC-KEYF28

IMPORTANT: These actuators must be used with items of the LG series only (e.g. LGMSAS1D0A).
Low level of coding acc. to EN ISO 14119.

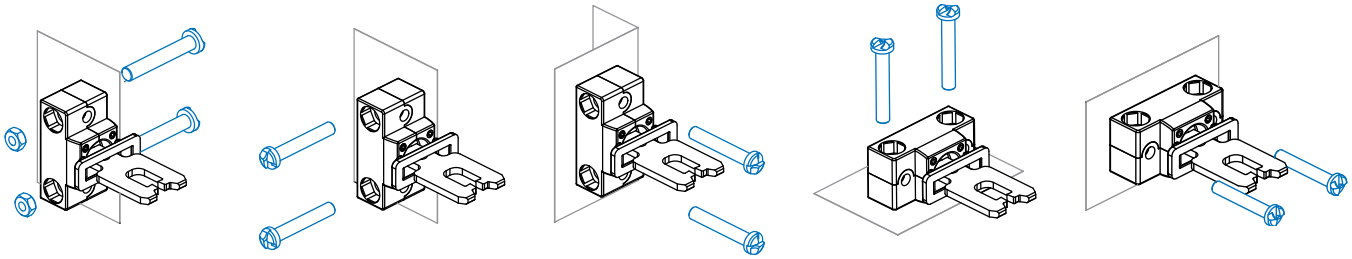
Article	Description
AC-KEYF28	Universal actuator







Joined and two directions adjustable actuator for doors with reduced dimensions.
The actuator has two couples of fixing holes and it is possible to rotate by 90° the actuator-working plan.



Accessories for sealing

Pliers, steel wire and lead seals used to seal the auxiliary release device (versions S1D and S7D only).

Article	Description
AC-FSPB-200	Pack of 200 lead seals
AC-FSPB-10	Pack of 10 lead seals

Article	Description
AC-FSFI-400	400 metre wire roll
AC-FSFI-10	10 metre wire roll

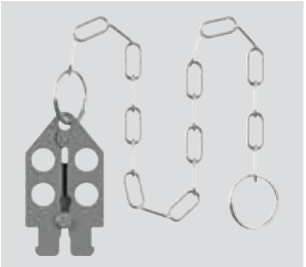
Article	Description
AC-FSPZ	Pliers without logo

Utilization limits

Do not use where dust and dirt may penetrate in any way into the head and deposit there, in particular where metal dust, concrete or chemicals are spread. Adhere to the EN ISO 14119 requirements regarding low level of coding for interlocks. Do not use in environments with the presence of explosive or flammable gas. In these cases, use ATEX products.

Accessories

Article	Description
AC-KB2	Actuator entry locking device

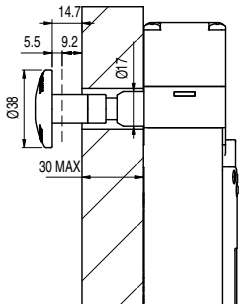


Padlockable device to lock the actuator entry (patented) in order to prevent the accidental closing of the door behind operators while they are inside the machine. To be used only with LG series switches (e.g. LGMSDS1D0A). Hole diameter for padlocks 9 mm.

Article	Description
AC-KLA371	Set of two locking keys

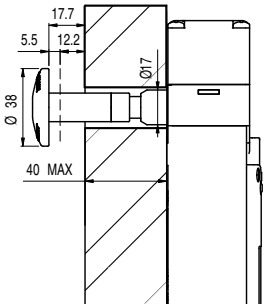
Extra copy of the locking keys to be purchased if further keys are needed (standard supply 2 units).
The keys of all switches have the same code. Other codes on request.

Other release button lengths



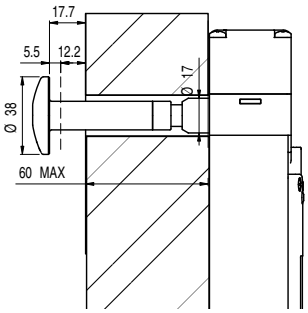
-BF30

For wall thickness
15 to 30 mm



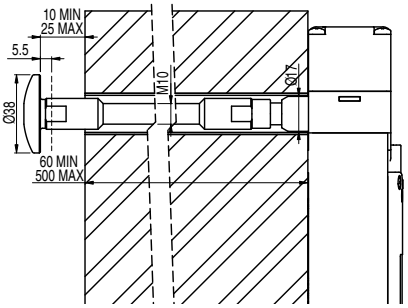
-BF40

For wall thickness
30 to 40 mm



-BF60

For wall thickness
40 to 60 mm



-BFAD

For wall thickness
60 to 500 mm

- Avoid torsion and bending on the release button bar.
- To guarantee the correct device operation, keep a distance of 10 to 25 mm between the wall and the release button.
- Keep clean the release button slipping area. The guide bushing or tube must be cleaned inside, since dirt or chemical products could compromise the device operation.
- Periodically check for correct device operation.

- Avoid torsion and bending on the release button bar.
- Use a bushing or a tube with 18±0,5 mm diameter as a guide inside the wall.
- The M10 threaded bar has to be inserted into the guide in order to avoid its bending. The M10 threaded bar is not supplied with the device.

Do not exceed an overall length of 500 mm between the release button and the switch.

- To guarantee the correct device operation, keep a distance of 10 to 25 mm between the wall and the release button.
- Keep clean the release button slipping area. The guide bushing or tube must be cleaned inside, since dirt or chemical products could compromise the device operation.
- Periodically check for correct device operation.

Release button

Article	Description
AC-FG-BF15	Technopolymer release button for max. 15 mm wall thickness, supplied with screw
AC-FG-BF30	Technopolymer release button for max. 30 mm wall thickness, supplied with screw
AC-FG-BF40	Technopolymer release button for max. 40 mm wall thickness, supplied with screw
AC-FG-BF60	Metal release button for max. 60 mm wall thickness, supplied with screw

Article	Description
AC-FG-BFAD	Metal release button for wall thickness from 60 to 500 mm, supplied with 2 supports and 2 screws, without M10 threaded bar.

The M10 bar can be supplied in zinc-plated steel with 1 m length.