LR-LM-LX-LZ-LK Safety Switches
with slotted lever

- Metal or technopolymer housing, from one to two conduit entries
- Protection degree IP67 according to EN 60529
- 10 contact blocks available
- Versions with M12 connector
- Versions with gold-plated silver contacts

Approvals

Housing

LR, LX and LK series housing made of glass fiber reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:
LM and LZ series: metal housing, baked powder coating.

LR, LM series - one threaded conduit entry:	M20x1.5 (standard)
LK series: one threaded conduit entry:	M16x1.5 (standard)
LX series - two knock-out threaded conduit entries:	M20x1.5 (standard)
LZ series - two threaded conduit entries:	M20x1.5 (standard)
Protection degree:	IP67 acc. to EN 60529 with cable gland having equal or higher protection degree

General data

For safety applications up to:	SIL 3 acc. to EN 62061 PL e acc. to EN ISO 13849-1
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Safety parameters:	
B_{10d}:	2,000,000 for NC contacts
Service life:	20 years
Ambient temperature:	-25°C … +80°C
Max. actuation frequency:	3600 operating cycles[1]/hour
Mechanical endurance:	1 million operating cycles[1]
Max. actuation speed:	180°/s
Min. actuation speed:	2°/s

(1) One operation cycle means two movements, one to close and one to open contacts, as defined in EN 60947-5-1.

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, UL 508, CSA 22.2 No.14
Approvals:
IEC 60947-5-1, UL 508, CSA 22.2 No.14 , GB14048.5-2001.

Cable cross section (flexible copper strands)

Contact blocks C20, C21, C22, C33, C34:	min.	1 x 0.34 mm²	(1 x AWG 22)
	max.	2 x 1.5 mm²	(2 x AWG 16)
Contact blocks C5, C7, C9, C18:	min.	1 x 0.5 mm²	(1 x AWG 20)
	max.	2 x 2.5 mm²	(2 x AWG 14)

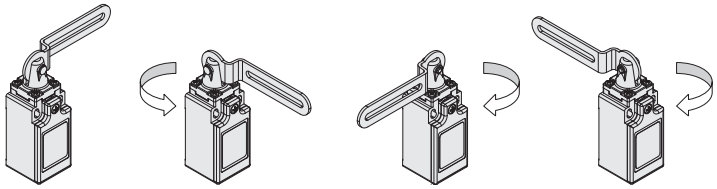
In conformity with the requirements of:
Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and EMC Directive 2004/108/EC.
Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1.

Electrical data		Utilization category
without connector	Thermal current (Ith): 10 A Rated insulation voltage (Ui): 500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 20, 21, 22, 33, 34) Rated impulse withstand voltage (U_{imp}): 6 kV 4 kV (contact blocks 20, 21, 22, 33, 34) Conditional short circuit current: 1000 A acc. to EN 60947-5-1 Protection against short circuits: type aM fuse 10 A 500 V Pollution degree: 3	Alternating current: AC15 (50÷60 Hz) Ue (V) 250 400 500 Ie (A) 6 4 1 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 6 1.1 0.4
with M12 connector 4 and 5 poles	Thermal current (Ith): 4 A Rated insulation voltage (Ui): 250 Vac 300 Vdc Protection against short circuits: type gG fuse 4 A 500 V Pollution degree: 3	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 120 250 Ie (A) 4 4 4 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1.1 0.4
with M12 connector 8 poles	Thermal current (Ith): 2 A Rated insulation voltage (Ui): 30 Vac 36 Vdc Protection against short circuits: type gG fuse 2 A 500 V Pollution degree: 3	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 Ie (A) 2 Direct current: DC13 Ue (V) 24 Ie (A) 2

Description

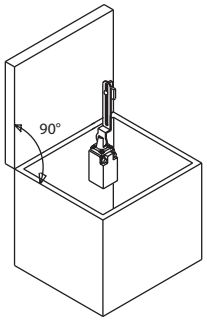
These safety switches are used to control gates or doors protecting hazardous machines without inertia. They are easy to install, and there is no need to interact with the hinge of the guard. Being sensitive with positively open the contacts, contacts open after few degrees of rotation, sending an immediate stop signal.

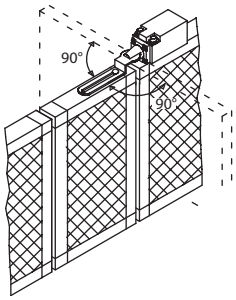
Orientable heads



By removing the four fastening screws, it is possible to rotate the head in 90° steps.

Application examples





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.

Extended temperature range

-40°C

Options are also available with an ambient operating temperature range of -40ºC to +80ºC.

For use in applications such as cold stores, sterilisers and others with low temperature environments. Special materials are used to realise these versions, and to maintain their features under these conditions, widening the installation possibilities.

Characteristics approved by UL

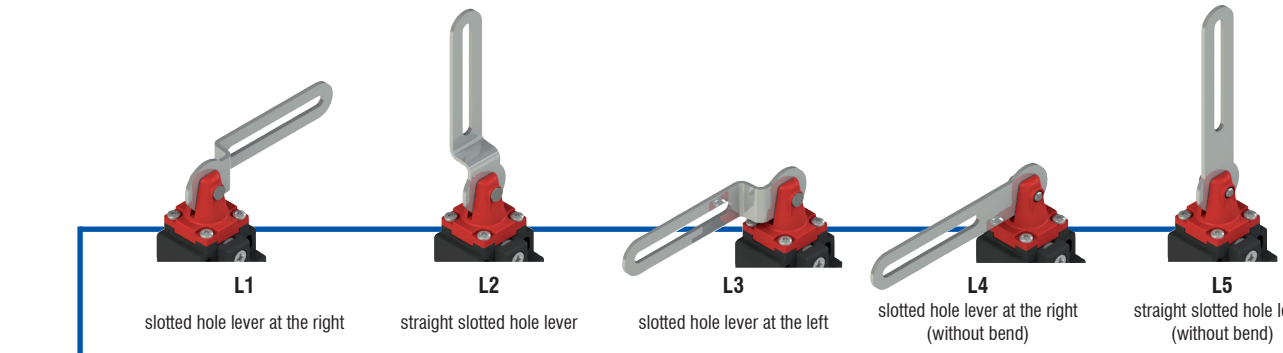
Utilization categories Q300 (69 VA, 125 … 250 Vdc)
A600 (720 VA, 120 … 600 Vac)
Data of housing type 1, 4X “indoor use only”, 12, 13
For all contact blocks use 60 or 75 °C copper (Cu) conductor, rigid or flexible, wire size AWG 12-14. Terminal tightening torque of 7.1 lb in (0.8 Nm).

In conformity with standard: UL 508, CSA 22.2 No.14

Please contact our technical service for the list of approved products.

IMO

Selection diagram



L1
slotted hole lever at the right

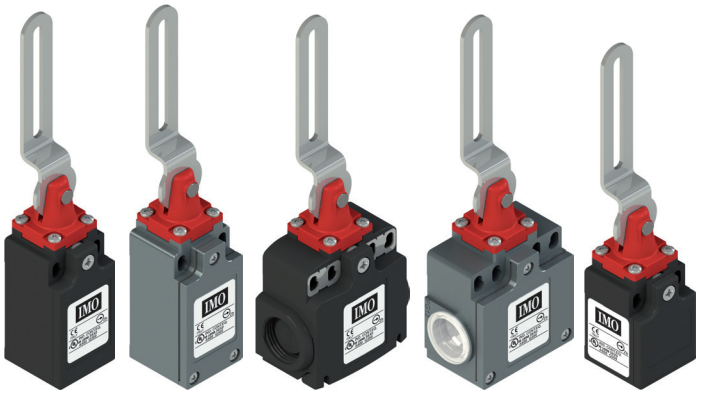
L2
straight slotted hole lever

L3
slotted hole lever at the left

L4
slotted hole lever at the right (without bend)

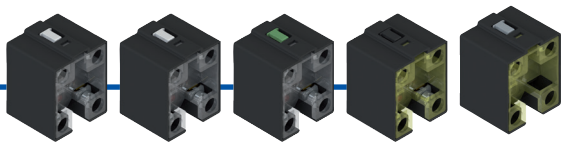
L5
straight slotted hole lever (without bend)

ACTUATORS



LR **LM** **LX** **LZ** **LK**

CONTACT BLOCKS



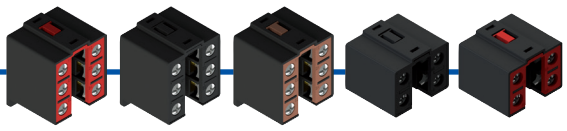
C5 1NO+1NC, snap action

C6 1NO+1NC, slow action

C18 1NO+1NC, slow action

C9 2NC slow action

C66 1NC slow action



C20 1NO+2NC, slow action

C21 3NC, slow action

C22 2NO+1NC, slow action

C33 1NO+1NC, slow action

C34 2NC slow action

CONDUIT ENTRIES

Threaded conduit entries (standard)

With cable gland

With M12 plastic connector

With M12 metal connector

product options

accessory sold separately

Options & Ordering Codes

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

LR C18 L1 - G 20 X70 H6

Housing

technopolymer, one conduit entry	LR
metal, one conduit entry	LM
technopolymer, two conduit entries	LX
metal, two conduit entries	LZ

Contact Blocks

1NO+1NC, slow action	C18
1NO+1NC, snap action	C5
1NO+1NC, slow action	C6
2NC, slow action	C9
1NO+2NC, slow action	C20
3NC, slow action	C21
2NO+1NC, slow action	C22
1NO+1NC, slow action	C33
2NC, slow action	C34
1NC, slow action	C66

Actuators

slotted hole lever at the right	L1
straight slotted hole lever	L2
slotted hole lever at the left	L3
slotted hole lever at the right (without bend)	L4
straight slotted hole lever (without bend)	L5

Contact Type

	silver contacts (standard)
G	silver contacts with 1 μm gold coating

Threaded Conduit Entry

20	M20x1.5 (standard)
16	M16x1.5 (LR-LX housing only)
	PG 13.5
11	PG11 (LR-LX housing only)

Pre-installed Cable Glands or Connectors

	without cable gland or connector (standard)
X23	cable gland for cables Ø 6…Ø 12 mm
...	.....
X70	M12 plastic connector, 4 poles
...	.....

Additional combinations possible. Contact Technical Support for information.

Ambient Temp.

	-25°C … +80°C (standard)
H6	-40°C … +80°C

LK C33 L1 - G 16 X24 H6

Housing

technopolymer, one conduit entry	LK

Contact Blocks

1NO+1NC, slow action	C33
2NC, slow action	C34

Actuators

slotted hole lever at the right	L1
straight slotted hole lever	L2
slotted hole lever at the left	L3
slotted hole lever at the right (without bend)	L4
straight slotted hole lever (without bend)	L5

Contact Type

	silver contacts (standard)
G	silver contacts with 1 μm gold coating

Threaded Conduit Entry

16	M16x1.5 (standard)
	PG11

Pre-installed Cable Glands

	without cable gland or connector (standard)
X24	cable gland for cables Ø 5…Ø 10 mm
X28	cable gland for cables Ø 3…Ø 7 mm

Ambient Temp.

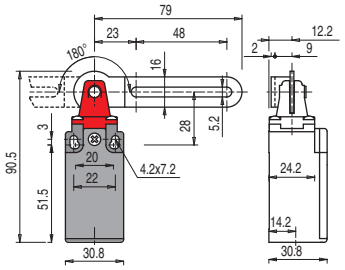
	-25°C … +80°C (standard)
H6	-40°C … +80°C

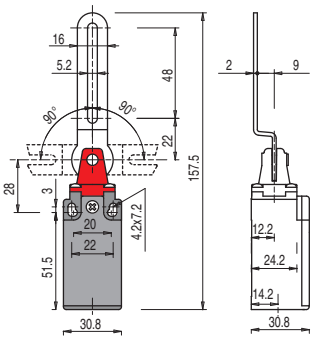
Dimensional drawings

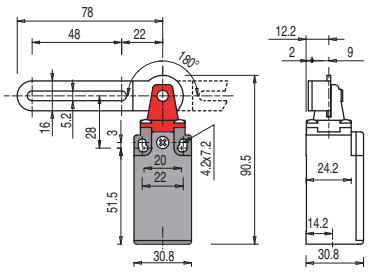
Contact type:

R = snap action
L = slow action
LA = slow action closer

All measures in the drawings are in mm

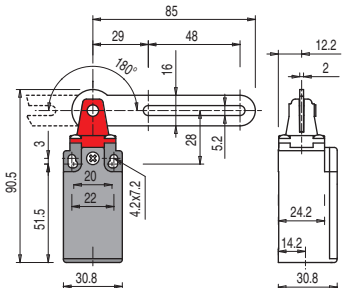


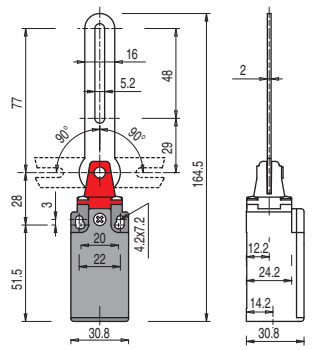




Contact blocks

C5	R	LRC5L1-20	1NO+1NC		LRC5L2-20	1NO+1NC		LRC5L3-20	1NO+1NC
C6	L	LRC6L1-20	1NO+1NC		LRC6L2-20	1NO+1NC		LRC6L3-20	1NO+1NC
C9	L	LRC9L1-20	2NC		LRC9L2-20	2NC		LRC9L3-20	2NC
C18	LA	LRC18L1-20	1NO+1NC		LRC18L2-20	1NO+1NC		LRC18L3-20	1NO+1NC
C20	L	LRC20L1-20	1NO+2NC		LRC20L2-20	1NO+2NC		LRC20L3-20	1NO+2NC
C21	L	LRC21L1-20	3NC		LRC21L2-20	3NC		LRC21L3-20	3NC
C22	L	LRC22L1-20	2NO+1NC		LRC22L2-20	2NO+1NC		LRC22L3-20	2NO+1NC
C33	L	LRC33L1-20	1NO+1NC		LRC33L2-20	1NO+1NC		LRC33L3-20	1NO+1NC
C34	L	LRC34L1-20	2NC		LRC34L2-20	2NC		LRC34L3-20	2NC
C66	L	LRC66L1-20	1NC		LRC66L2-20	1NC		LRC66L3-20	1NC
Min. force		0.11 Nm (0.15 Nm ⊕)			0.11 Nm (0.15 Nm ⊕)			0.11 Nm (0.15 Nm ⊕)	
Travel diagrams		group 10			group 11			group 10	



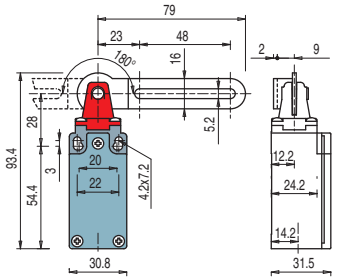


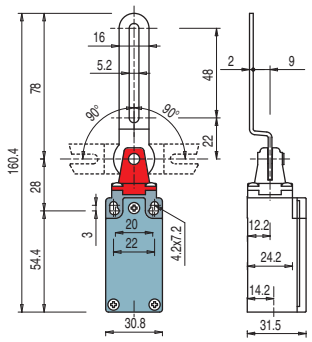
Contact blocks

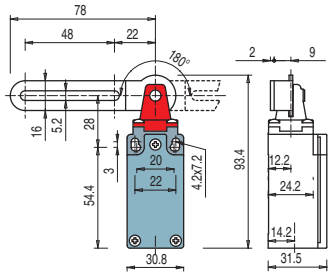
C5	R	LRC5L4-20	1NO+1NC		LRC5L5-20	1NO+1NC		
C6	L	LRC6L4-20	1NO+1NC		LRC6L5-20	1NO+1NC		
C9	L	LRC9L4-20	2NC		LRC9L5-20	2NC		
C18	LA	LRC18L4-20	1NO+1NC		LRC18L5-20	1NO+1NC		
C20	L	LRC20L4-20	1NO+2NC		LRC20L5-20	1NO+2NC		
C21	L	LRC21L4-20	3NC		LRC21L5-20	3NC		
C22	L	LRC22L4-20	2NO+1NC		LRC22L5-20	2NO+1NC		
C33	L	LRC33L4-20	1NO+1NC		LRC33L520	1NO+1NC		
C34	L	LRC34L4-20	2NC		LRC34L520	2NC		
C66	L	LRC66L4-20	1NC		LRC66L5-20	1NC		
Min. force		0.11 Nm (0.15 Nm ⊕)			0.11 Nm (0.15 Nm ⊕)			
Travel diagrams		group 10			group 11			

Contact type:

R = snap action
L = slow action
LA = slow action closer

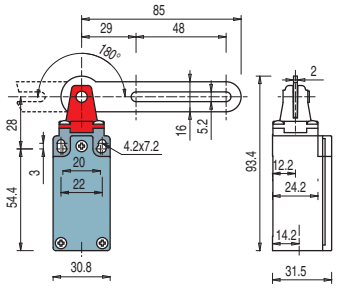


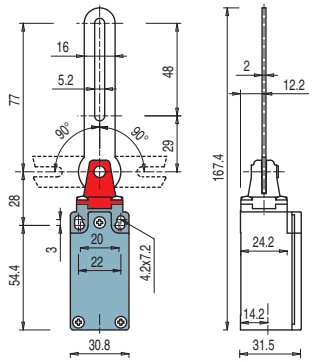




Contact blocks

C5	R	LMC5L1-20	1NO+1NC	LMC5L2-20	1NO+1NC	LMC5L3-20	1NO+1NC
C6	L	LMC6L120	1NO+1NC	LMC6L2-20	1NO+1NC	LMC6L3-20	1NO+1NC
C9	L	LMC9L1-20	2NC	LMC9L2-20	2NC	LMC9L3-20	2NC
C18	LA	LMC18L1-20	1NO+1NC	LMC18L2-20	1NO+1NC	LMC18L3-20	1NO+1NC
C20	L	LMC20L1-20	1NO+2NC	LMC20L2-20	1NO+2NC	LMC20L3-20	1NO+2NC
C21	L	LMC21L1-20	3NC	LMC21L2-20	3NC	LMC21L3-20	3NC
C22	L	LMC22L1-20	2NO+1NC	LMC22L2-20	2NO+1NC	LMC22L3-20	2NO+1NC
C33	L	LMC33L1-20	1NO+1NC	LMC33L2-20	1NO+1NC	LMC33L3-20	1NO+1NC
C34	L	LMC34L1-20	2NC	LMC34L2-20	2NC	LMC34L3-20	2NC
C66	L	LMC66L1-20	1NC	LMC66L2-20	1NC	LMC66L3-20	1NC
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)	
Travel diagrams		group 10		group 11		group 10	



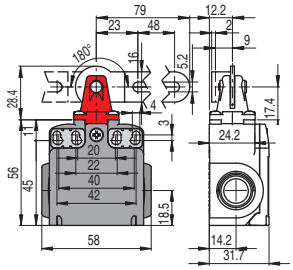


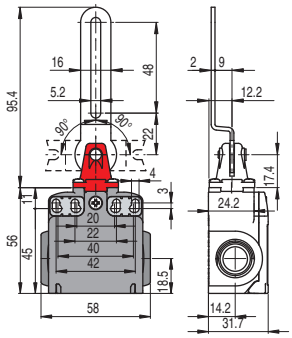
Contact blocks

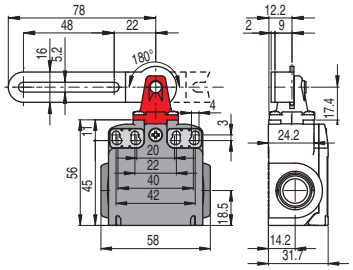
C5	R	LMC5L4-20	1NO+1NC	LMC5L5-20	1NO+1NC		
C6	L	LMC6L4-20	1NO+1NC	LMC6L5-20	1NO+1NC		
C9	L	LMC9L4-20	2NC	LMC9L5-20	2NC		
C18	LA	LMC18L4-20	1NO+1NC	LMC18L5-20	1NO+1NC		
C20	L	LMC20L4-20	1NO+2NC	LMC20L5-20	1NO+2NC		
C21	L	LMC21L4-20	3NC	LMC21L5-20	3NC		
C22	L	LMC22L4-20	2NO+1NC	LMC22L5-20	2NO+1NC		
C33	L	LMC33L4-20	1NO+1NC	LMC33L5-20	1NO+1NC		
C34	L	LMC34L4-20	2NC	LMC34L5-20	2NC		
C66	L	LMC66L420	1NC	LMC66L5-20	1NC		
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)			
Travel diagrams		group 10		group 11			

Contact type:

R = snap action
L = slow action
LA = slow action closer

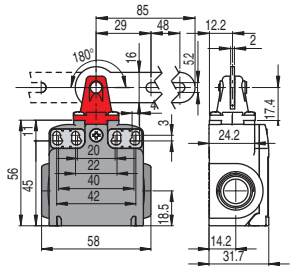


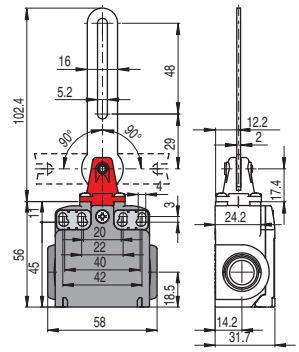




Contact blocks

C5	R	LXC5L1-20	1NO+1NC	LXC5L2-20	1NO+1NC	LXC5L3-20	1NO+1NC
C6	L	LXC6L1-20	1NO+1NC	LXC6L2-20	1NO+1NC	LXC6L3-20	1NO+1NC
C9	L	LXC9L1-20	2NC	LXC9L2-20	2NC	LXC9L3-20	2NC
C18	LA	LXC18L1-20	1NO+1NC	LXC18L2-20	1NO+1NC	LXC18L3-20	1NO+1NC
C20	L	LXC20L1-20	1NO+2NC	LXC20L2-20	1NO+2NC	LXC20L3-20	1NO+2NC
C21	L	LXC21L1-20	3NC	LXC21L2-20	3NC	LXC21L3-20	3NC
C22	L	LXC22L120	2NO+1NC	LXC22L2-20	2NO+1NC	LXC22L3-20	2NO+1NC
C33	L	LXC33L1-20	1NO+1NC	LXC33L2-20	1NO+1NC	LXC33L3-20	1NO+1NC
C34	L	LXC34L1-20	2NC	LXC34L2-20	2NC	LXC34L3-20	2NC
C66	L	LXC66L1-20	1NC	LXC66L2-20	1NC	LXC66L3-20	1NC
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)	
Travel diagrams		group 10		group 11		group 10	



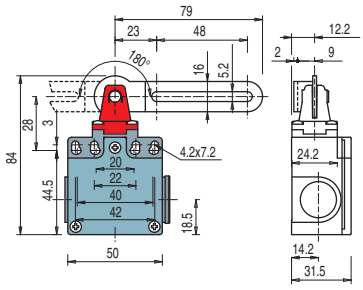


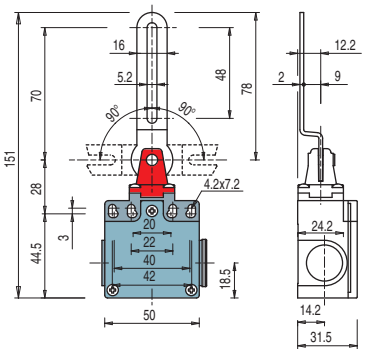
Contact blocks

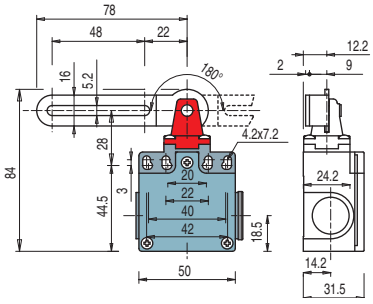
C5	R	LXC5L4-20	1NO+1NC	LXC5L5-20	1NO+1NC		
C6	L	LXC6L4-20	1NO+1NC	LXC6L5-20	1NO+1NC		
C9	L	LXC9L4-20	2NC	LXC9L5-20	2NC		
C18	LA	LXC18L4-20	1NO+1NC	LXC18L5-20	1NO+1NC		
C20	L	LXC20L4-20	1NO+2NC	LXC20L5-20	1NO+2NC		
C21	L	LXC21L4-20	3NC	LXC21L5-20	3NC		
C22	L	LXC22L4-20	2NO+1NC	LXC22L5-20	2NO+1NC		
C33	L	LXC33L4-20	1NO+1NC	LXC33L5-20	1NO+1NC		
C34	L	LXC34L4-20	2NC	LXC34L5-20	2NC		
C66	L	LXC66L4-20	1NC	LXC66L5-20	1NC		
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)			
Travel diagrams		group 10		group 11			

Contact type:

R = snap action
L = slow action
LA = slow action closer

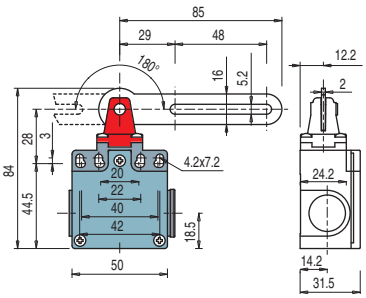


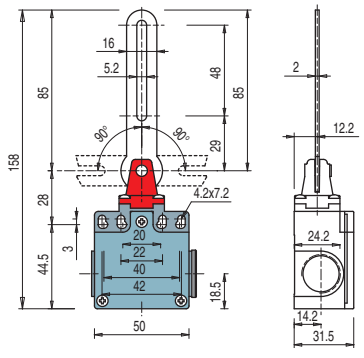




Contact blocks

C5	R	LZC5L1-20	1NO+1NC	LZC5L2-20	1NO+1NC	LZC5L3-20	1NO+1NC
C6	L	LZC6L1-20	1NO+1NC	LZC6L2-20	1NO+1NC	LZC6L3-20	1NO+1NC
C9	L	LZC9L1-20	2NC	LZC9L2-20	2NC	LZC9L3-20	2NC
C18	LA	LZC18L1-20	1NO+1NC	LZC18L2-20	1NO+1NC	LZC18L3-20	1NO+1NC
C20	L	LZC20L1-20	1NO+2NC	LZC20L2-20	1NO+2NC	LZC20L3-20	1NO+2NC
C21	L	LZC21L1-20	3NC	LZC21L2-20	3NC	LZC21L3-20	3NC
C22	L	LZC22L1-20	2NO+1NC	LZC22L2-20	2NO+1NC	LZC22L3-20	2NO+1NC
C33	L	LZC33L1-20	1NO+1NC	LZC33L2-20	1NO+1NC	LZC33L3-20	1NO+1NC
C34	L	LZC34L1-20	2NC	LZC34L2-20	2NC	LZC34L3-20	2NC
C66	L	LZC66L1-20	1NC	LZC66L2-20	1NC	LZC66L3-20	1NC
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)	
Travel diagrams		group 10		group 11		group 10	





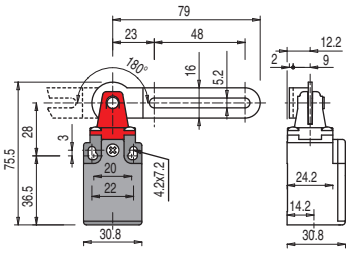
Contact blocks

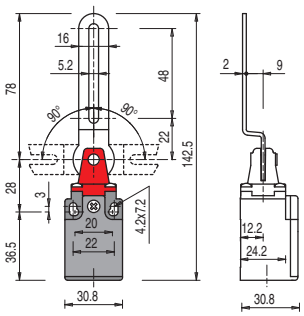
C5	R	LZC5L4-20	1NO+1NC	LZC5L5-20	1NO+1NC		
C6	L	LZC6L4-20	1NO+1NC	LZC6L5-20	1NO+1NC		
C9	L	LZC9L4-20	2NC	LZC9L5-20	2NC		
C18	LA	LZC18L4-20	1NO+1NC	LZC18L5-20	1NO+1NC		
C20	L	LZC20L4-20	1NO+2NC	LZC20L5-20	1NO+2NC		
C21	L	LZC21L4-20	3NC	LZC21L5-20	3NC		
C22	L	LZC22L4-20	2NO+1NC	LZC22L5-20	2NO+1NC		
C33	L	LZC33L4-20	1NO+1NC	LZC33L5-20	1NO+1NC		
C34	L	LZC34L4-20	2NC	LZC34L5-20	2NC		
C66	L	LZC66L4-20	1NC	LZC66L5-20	1NC		
Min. force		0.11 Nm (0.15 Nm)		0.11 Nm (0.15 Nm)			
Travel diagrams		group 10		group 11			

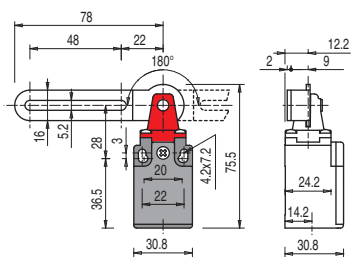
Contact type:

L = slow action

Contact blocks

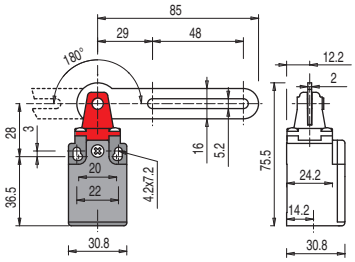


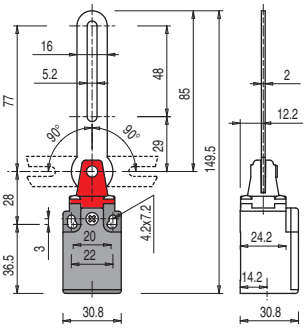




C33 L	LKC33L1 1NO+1NC	LKC33L2 1NO+1NC	LKC33L3 1NO+1NC
C34 L	LKC34L1 2NC	LKC34L2 2NC	LKC34L3 2NC
Min. force	0.11 Nm (0.15 Nm)	0.11 Nm (0.15 Nm)	0.11 Nm (0.15 Nm)
Travel diagrams	group 10	group 11	group 10

Contact blocks





C33 L	LKC33L4 1NO+1NC	LKC33L5 1NO+1NC	
C34 L	LKC34L4 2NC	LKC34L5 2NC	
Min. force	0.11 Nm (0.15 Nm)	0.11 Nm (0.15 Nm)	
Travel diagrams	group 10	group 11	