

LC Position Switches

- Metal housing, one conduit entry
- Protection degree IP67 according to EN 60529
- 3 contact blocks available
- 26 actuators available
- M12 assembled connector versions
- Silver contacts gold plated versions
- Other versions available (see LR, LX, LZ datasheets)



Approvals



General data

Ambient temperature:	-25°C ... +80°C
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles ¹
Mounting position:	any
Safety parameters:	
B _{10d} :	40,000,00 for NC contacts
Mechanical interlock, not coded:	type 1 according to EN ISO 14119

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

Cable cross section (flexible copper strands)

Contact blocks C33, C34:

min.	1 x 0.34 mm ²	(1 x AWG 22)
max.	2 x 1.5 mm ²	(2 x AWG 16)

Contact block C3:

min.	1 x 0.5 mm ²	(1 x AWG 20)
max.	2 x 1.5 mm ²	(2 x AWG 16)

In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, 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.

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.

Installation for safety applications:

Use only switches marked with the symbol ⊕ aside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: C11-C12, C21-C22 or C31-C32) as stated in **standard EN 60947-5-1, encl. K, par. 2**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams. Operate the switch **at least with the positive opening force**, indicated between brackets below each article, aside the minimum force value.

Electrical data

without connector	Thermal current (I _{th}):	10 A
	Rated insulation voltage (U _i):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 2, 11, 12, 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 according to EN 60947-5-1
	Protection against short circuits:	type aM fuse 10 A 500 V
	Pollution degree:	3

Utilization category

Alternating current: AC15 (50 ÷ 60 Hz)			
U _e (V)	250	400	500
I _e (A)	6	4	1
Direct current: DC13			
U _e (V)	24	125	250
I _e (A)	6	1.1	0.4

with M12 connector
5 poles

Thermal current (I _{th}):	4 A
Rated insulation voltage (U _i):	250 Vac 300 Vdc
Protection against short circuits:	type gG fuse 4 A 500 V
Pollution degree:	3

Alternating current: AC15 (50 ÷ 60 Hz)			
U _e (V)	24	120	250
I _e (A)	4	4	4
Direct current: DC13			
U _e (V)	24	125	250
I _e (A)	4	1.1	0.4

UL Approval

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

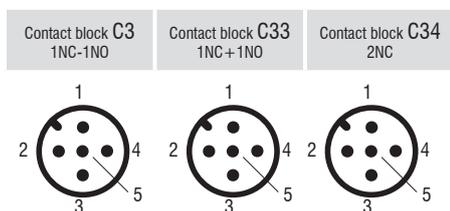
For all contact blocks except C2 and C3 use 60 or 75°C copper (Cu) conductor, rigid or flexible, wire size AWG 12/14. Terminal tightening torque of 7.1 lb in (0.8 Nm).

For contact blocks C2 and C3 use 60 or 75 °C copper (Cu) conductor, rigid or flexible, wire size AWG 14. Terminal tightening torque of 12 lb in (1.4 Nm).

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

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

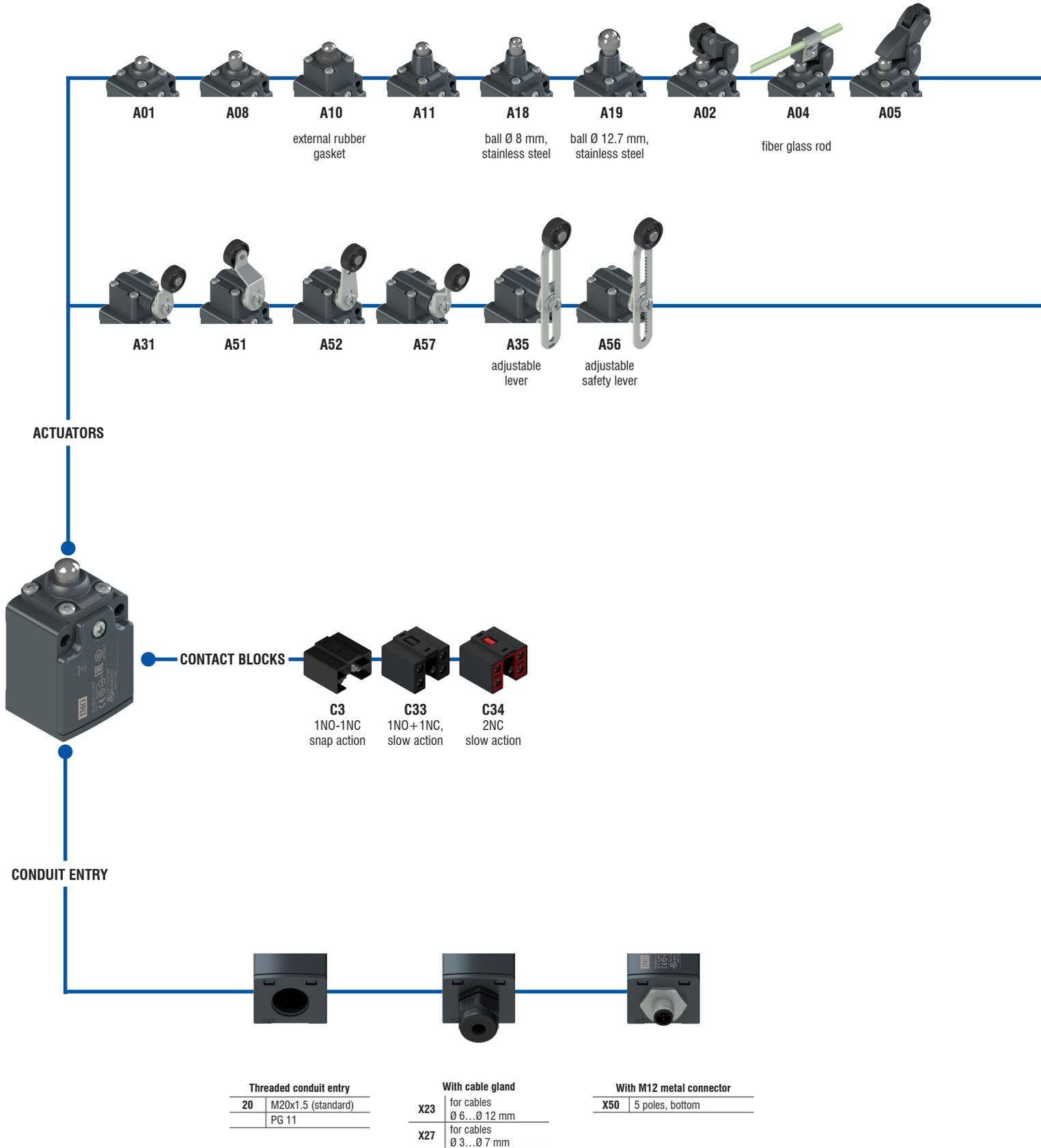
Connection diagram for M12 connectors



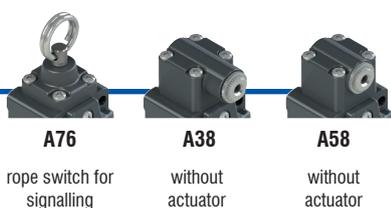
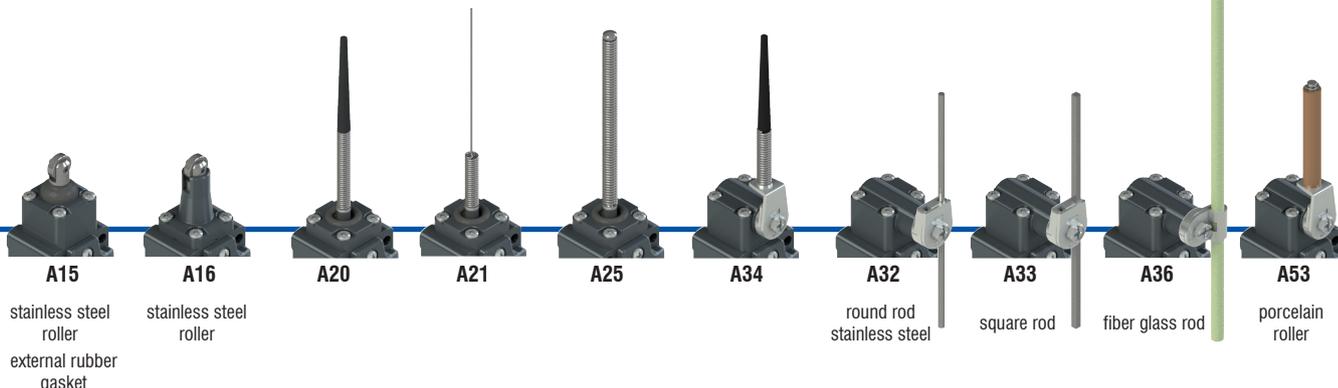
M12 connector, 5 poles M12 connector, 5 poles M12 connector, 5 poles

Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NC	1-2	NC	1-2	NC	1-2
NO	3-4	NO	3-4	NC	3-4
ground	5	ground	5	ground	5

Selection diagram



● product options
→ accessory sold separately



LOOSE ACTUATORS



Options & Ordering Codes

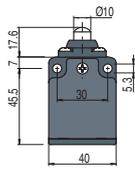
Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

	LC	C3	A02	-	G	20	X50	R24	H6
Housing	metal, one conduit entry								Ambient Temperature
	LC								-25°C to +80°C (standard)
									H6 -40°C to +80°C
Contact Blocks									Rollers
1NO+1NC, snap action		C3							standard roller
1NO+1NC, slow action		C33						R24	stainless steel, Ø 20mm (for actuators A02, A05, A31, A35, A51, A52, A56, A57)
1NO+1NC, slow action, overlapped		C34						R25	technopolymer, Ø 35mm (for actuators A31, A35, A51, A52, A56, A57)
Other contact blocks available upon request								R5	rubber, Ø 40mm (for actuators A31, A35, A51, A52, A56, A57)
Actuators								R26	rubber, Ø 50mm (for actuators A31, A35, A51, A52, A56, A57)
short plunger			A01					R27	rubber, protruding, Ø 50mm (for actuators A31, A36)
roller lever			A02						Preinstalled Cable Gland
angled roller lever			A05						without cable gland (standard)
Other actuators available upon request									X23 cable gland for cables Ø 6...Ø 12mm
Contact Type									X27 cable gland for cables Ø 3...Ø 7mm
silver contacts (standard)									X50 M12 metal connector, 5 poles
silver contacts with 1µm gold coating (not for contact block C3)					G				
Threaded Conduit Entry									
M20x1.5 (standard)						20			
PG11									

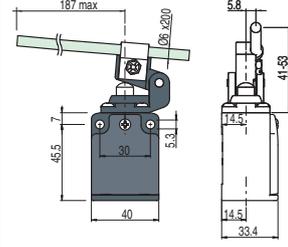
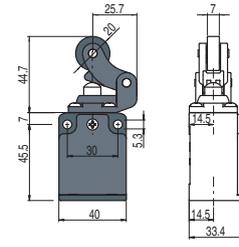
Please contact our technical support team for the complete list of possible combinations

Contact type:

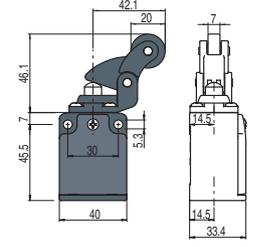
- R** = snap action
- L** = slow action



With stainless steel roller on request

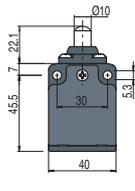


With stainless steel roller on request

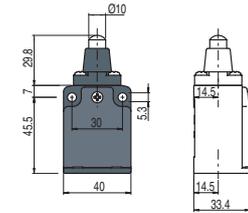
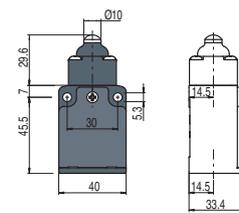


Contact blocks

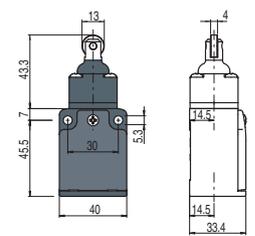
C3	R	LCC3A01-20	1NO-1NC	LCC3A02-20	1NO-1NC	LCC3A04-20	1NO-1NC	LCC3A05-20	1NO-1NC
C33	L	LCC33A01-20	1NO+1NC	LCC33A02-20	1NO+1NC	LCC33A04-20	1NO+1NC	LCC33A05-20	1NO+1NC
C34	L	LCC34A01-20	2NC	LCC34A02-20	2NC	LCC34A04-20	2NC	LCC34A05-20	2NC
Max. speed		type 4		type 3		0.5 m/s		type 3	
Min. force		6 N (25 N)		4 N (25 N)		0.17 Nm		4 N (25 N)	
Travel diagrams		group 1		group 2		group 1		group 2	



With external rubber gasket

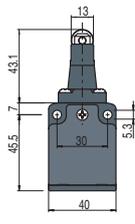


With external rubber gasket

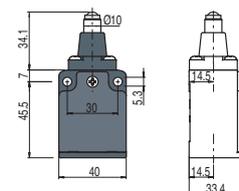


Contact blocks

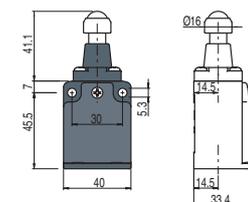
C3	R	LCC3A08-20	1NO-1NC	LCC3A10-20	1NO-1NC	LCC3A11-20	1NO-1NC	LCC3A15-20	1NO-1NC
C33	L	LCC33A08-20	1NO+1NC	LCC33A10-20	1NO+1NC	LCC33A11-20	1NO+1NC	LCC33A15-20	1NO+1NC
C34	L	LCC34A08-20	2NC	LCC34A10-20	2NC	LCC34A11-20	2NC	LCC34A15-20	2NC
Max. speed		type 4		type 4		type 4		type 2	
Min. force		6 N (25 N)		7 N (25 N)		6 N (25 N)		7 N (25 N)	
Travel diagrams		group 1		group 1		group 1		group 1	



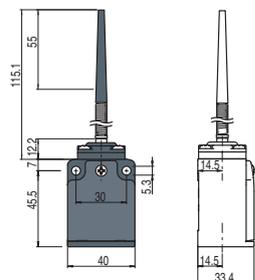
Ball, Ø 8 mm, stainless steel



Ball, Ø 12.7 mm, stainless steel



With external rubber gasket



Contact blocks

C3	R	LCC3A16-20	1NO-1NC	LCC3A18-20	1NO-1NC	LCC3A19-20	1NO-1NC	LCC3A20-20	1NO-1NC
C33	L	LCC33A16-20	1NO+1NC	LCC33A18-20	1NO+1NC	LCC33A19-20	1NO+1NC	LCC33A20-20	1NO+1NC
C34	L	LCC34A16-20	2NC	LCC34A18-20	2NC	LCC34A19-20	2NC	LCC34A20-20	2NC
Max. speed		type 2		type 4		type 4		1 m/s	
Min. force		6 N (25 N)		6 N (25 N)		6 N (25 N)		0.07 Nm	
Travel diagrams		group 1		group 1		group 1		group 3	

All measures in the drawings are in mm

Contact type:

- R** = snap action
- L** = slow action

Contact blocks

	With external rubber gasket	With external rubber gasket	Other rollers available	Round rod, Ø 3 mm, stainless steel				
C3	R LCC3A21-20	1NO-1NC	LCC3A25-20	1NO-1NC	LCC3A31-20	1NO-1NC	LCC3A32-20	1NO-1NC
C33	L LCC33A21-20	1NO+1NC	LCC33A25-20	1NO+1NC	LCC33A31-20	⊕ 1NO+1NC	LCC33A32-20	1NO+1NC
C34	L LCC34A21-20	2NC	LCC34A25-20	2NC	LCC34A31-20	⊕ 2NC	LCC34A32-20	2NC
Max. speed	1 m/s		1 m/s		type 1		1.5 m/s	
Min. force	0.06 Nm		0.1 Nm		0.09 Nm (0.25 Nm ⊕)		0.09 Nm	
Travel diagrams	group 3		group 3		group 4		group 4	

	Square rod, 3x3 mm	Other rollers available	Fiber glass rod					
C3	R LCC3A33-20	1NO-1NC	LCC3A34-20	1NO-1NC	LCC3A35-20	1NO-1NC	LCC3A36-20	1NO-1NC
C33	L LCC33A33-20	1NO+1NC	LCC33A34-20	1NO+1NC	LCC33A35-20	⊕ (1) 1NO+1NC	LCC33A36-20	1NO+1NC
C34	L LCC34A33-20	2NC	LCC34A34-20	2NC	LCC34A35-20	⊕ (1) 2NC	LCC34A36-20	2NC
Max. speed	1.5 m/s		1 m/s		type 1		1.5 m/s	
Min. force	0.09 Nm		0.09 Nm		0.09 Nm (0.25 Nm ⊕)		0.09 Nm	
Travel diagrams	group 4		group 4		group 4		group 4	

	Other rollers available	Other rollers available	Porcelain roller	Other rollers available				
C3	R LCC3A51-20	1NO-1NC	LCC3A52-20	1NO-1NC	LCC3A53-J1120	1NO-1NC	LC3A56-20	1NO-1NC
C33	L LCC33A51-20	⊕ 1NO+1NC	LCC33A52-20	⊕ 1NO+1NC	LCC33A53-J1120ST	⊕ 1NO+1NC	LC33A56-20	⊕ 1NO+1NC
C34	L LCC34A51-20	⊕ 2NC	LCC34A52-20	⊕ 2NC	LCC34A53-J1120ST	⊕ 2NC	LC34A56-20	⊕ 2NC
Max. speed	type 1		type 1		0.5 m/s		type 1	
Min. force	0.05 Nm (0.25 Nm ⊕)		0.05 Nm (0.25 Nm ⊕)		0.02 Nm (0.25 Nm ⊕)		0.09 Nm (0.25 Nm ⊕)	
Travel diagrams	group 4		group 4		group 5		group 4	

(1) Positive opening only with actuator set to max.

All measures in the drawings are in mm

Contact type:

R = snap action
L = slow action

	Other rollers available		Rope switch for signalling	
Contact blocks	C3 R LCC3A57-20	1NO-1NC	LCC3A76-20	1NO-1NC
	C33 L LCC33A57-20	1NO+1NC	LCC33A76-20	1NO+1NC
	C34 L LCC34A57-20	2NC	LCC34A76-20	2NC
Max. speed	type 1		0.5 m/s	
Min. force	0.09 Nm (0.25 Nm \rightarrow)		initial 20 N - final 40 N	
Travel diagrams	group 4		group 6	

All measures in the drawings are in mm

Position switches with revolving lever without actuator

All measures in the drawings are in mm

	Regular head		Compact head	
Contact blocks	C3 R LCC3A38-20	1NO-1NC	LCC3A58-20	1NO-1NC
	C33 L LCC33A38-20	1NO+1NC	LCC33A58-20	1NO+1NC
	C34 L LCC34A38-20	2NC	LCC34A58-20	2NC
Min. force	0.09 Nm (0.25 Nm \rightarrow)		0.05 Nm (0.25 Nm \rightarrow)	
Travel diagrams	group 4		group 4	

All measures in the drawings are in mm

IMPORTANT

For safety applications: join only switches and actuators marked with symbol \rightarrow aside the product code.

Loose actuators

All measures in the drawings are in mm

IMPORTANT: These loose actuators can be used with items of series FD, FP, FL, FC only.

Technopolymer roller Ø 20 mm	Adjustable round rod Ø 3x125 mm	Adjustable square rod 3x3x125 mm	Flexible rod with pointed end	Adjustable actuator with technopolymer roller	Adjustable fiber glass rod
AC-SA31 \rightarrow	AC-SA32 ⁽³⁾	AC-SA33 ⁽³⁾	AC-SA34	AC-SA35 \rightarrow ⁽¹⁾ ⁽³⁾	AC-SA36 ⁽³⁾
Technopolymer roller Ø 20 mm	Technopolymer roller Ø 20 mm	Porcelain roller	Adjustable safety actuator with technopolymer roller	Technopolymer roller Ø 20 mm	
AC-SA51 \rightarrow	AC-SA52 \rightarrow	AC-SA53 \rightarrow ⁽²⁾	AC-SA56 \rightarrow ⁽³⁾	AC-SA57 \rightarrow	

Special loose actuators

All measures in the drawings are in mm

Stainless steel rollers, Ø 20 mm

AC-SA31-1 (2)	AC-SA35-1 (1) (3)	AC-SA51-1 (2)	AC-SA52-1 (2)	AC-SA56-1 (2) (3)	AC-SA57-1 (2)

Technopolymer rollers, Ø 35 mm

AC-SA31-2 (4)	AC-SA35-2 (1) (3)	AC-SA51-2 (4)	AC-SA52-2 (2)	AC-SA56-2 (2) (3)	AC-SA57-2 (2)

Rubber rollers, Ø 40 mm

AC-SA31-R5 (4)	AC-SA35-R5 (1) (3)	AC-SA51-R5 (4)	AC-SA52-R5 (2)	AC-SA56-R5 (2) (3)	AC-SA57-R5 (4)

Rubber rollers, Ø 50 mm

AC-SA31-3 (4)	AC-SA35-3 (1) (3)	AC-SA51-3 (4)	AC-SA52-3 (4)	AC-SA56-3 (2) (3)	AC-SA57-3 (4)

Protruding rubber rollers, Ø 50 mm

AC-SA35-4 (1) (3)	AC-SA56-4 (2) (3)

- (1) Actuator AC-SA35 can only be used in safety applications if adjusted to its max. length, as shown in figure beside. If you need an adjustable lever for safety applications, use the adjustable safety lever AC-SA56.
- (2) The position switch obtained by assembling switch LC X A58 (e.g. LCC3A58-20, LCC33A58-20...) with actuator AC-SA53 will not present the same travel diagrams and actuating forces as switch LC X A53-J11ST (e.g. LCC3A53-J1120ST, LCC33A53-J1120ST...).
- (3) If installed with switch LC X A58-20 (e.g. LCC3A58-20, LCC33A58-20...) the actuator could mechanically interfere with the housing of the switch. The interference could happen or not according to the actuator and the head fixing position.
- (4) The actuator cannot be rotated to the inside because it will mechanically interfere with the switch head.

