PAGE 7-2

PLASTIC LIMIT SWITCHES KB-KC TYPES
- Dimensions to EN 50047 standards for KB type
- Dimensions compatible to EN 50047 for KC type
- Self-extinguishing polymer thermoplastic housing
- Removable and interchangeable auxiliary contact blocks
- Bi-directional versions
- Unique fixing mechanism of operating head
- Degree of protection IP65
- M20 cable entry; PG13.5 entry on request.

PAGE 7-2

METAL LIMIT SWITCHES KM-KN TYPES
- Dimensions to EN 50047 standards for KM type
- Dimensions compatible to EN 50047 for KN type
- Aluminium-zinc alloy housing
- Removable and interchangeable auxiliary contact blocks
- Bi-directional versions
- Unique fixing mechanism of operating head
- Degree of protection IP65
- M20 cable entry; PG13.5 entry on request.

PAGE 7-18

PREWIRED METAL LIMIT SWITCHES KP TYPE
- Dimensions to EN 50047 stadards
- 2 metre long cable
- Degree of protection IP67.

PAGE 7-19

PLASTIC LIMIT SWITCHES T SERIES
- Dimensions to EN 50041 standards
- Self-extinguishing polymer thermoplastic housing
- Heads rotatable in 4 different 90° angle positions
- Degree of protection IP66
- PG13.5 cable entry.

PAGE 7-21

METAL LIMIT SWITCHES PL SERIES
- Aluminium-zinc alloy housing
- Maximum of 2 auxiliary contacts
- Degree of protection IP40 and IP65
- PG11 cable entry.

PAGE 7-23

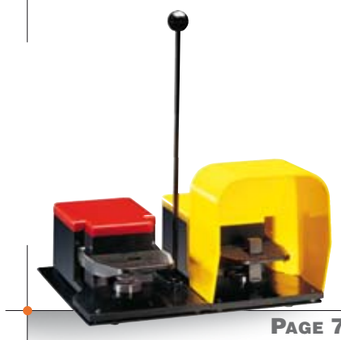
ROPE-PULL LEVER LIMIT SWITCHES FOR NORMAL STOPPING
- Self-extinguishing polymer thermoplastic housing
- Aluminium-zinc alloy housing
- Degree of protection IP40, IP65 and IP66
- PG11 or PG13.5 cable entry.

PAGE 7-25

ROPE-PULL LEVER SAFETY LIMIT SWITCHES FOR EMERGENCY STOPPING
- Compliant to ISO 13850 (ex EN 418) standards
- Degree of protection IP65 and IP66
- PG11 and PG13.5 cable entry.

PAGE 7-26

PLASTIC MICRO SWITCHES KS TYPE
- Polymer thermoplastic housing
- Changeover contact switch
- Degree of protection IP00 or IP20.



PAGE 7-27

FOOT SWITCHES
- Versions with or without protection cover
- Self-extinguishing polymer thermoplastic housing
- Aluminium-zinc alloy housing
- Degree of protection IP54 and IP65
- M20 cable entry; PG13.5 entry on request.

- *Dimensions to EN 50047 standards*
- *Dimensions compatible to EN 50047*
- *Dimensions to EN 50041 standards*
- *Direct opening operation of NC contacts*
- *Extensive range of operating heads*
- *Versions complete with interchangeable and rotatable heads*
- *Insertable and interchangeable auxiliary contact blocks.*

The locking bayonet fixing provides for a quick insertion of the operator heads with no need of particular tools.
Heads interchangeable and rotatable in 8 different 45° angle positions.

PLANET - SWITCH

SEC. PAGE

Metal and plastic K series (dimensions to/compatible to EN 50047)
Top push rod plunger limit switch 7- 2
Top roller push plunger limit switch 7- 3
Roller centre push lever limit switch 7- 4
Roller side push lever limit switch 7- 5
Roller lever limit switch 7- 6
Adjustable roller lever limit switch 7- 8
Ceramic rod lever limit switch 7- 10
Adjustable rod lever limit switch 7- 11
Wobble stick, omnidirectional limit switch 7- 12
Hinge operating limit switch 7- 13
Slotted lever limit switch 7- 14
Key operated limit switch 7- 15
Accessories and spare parts 7- 16

Prewired metal limit switches, K series 7- 18

Plastic T series (dimensions to EN 50041)
Top push rod plunger and roller lever limit switches 7- 19
Wobble stick, omnidirectional and key operated limit switches 7- 20

Metal PL series
Top push rod plunger, top roller push plunger, toller centre push lever limit switch 7- 21
Latch and manual release limit switch 7- 22
Manual reload and magnetic release limit switch 7- 22
Bi-directional limit switch 7- 22

Rope-pull lever limit switches for normal stopping ... 7- 23

Rope-pull lever safety limit switches for emergency stopping ISO 13850 (ex EN 418) compliant 7- 25

Plastic micro switches, K series 7- 26

Lovato electric

Limit, micro and foot switches

Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

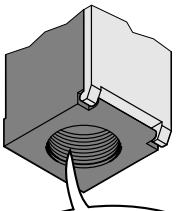
Top push rod plunger

KB A... - KM A...

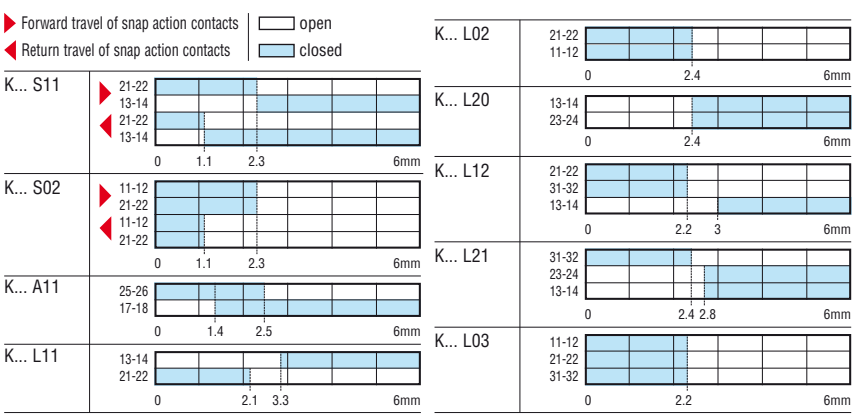
KC A... - KN A...

Order code Plastic body	Metal body	Contacts	Plunger material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB A1 S11	**KM A1 S11**	1NO+1NC Snap action❶	Metal	5	❷
KB A1 S02	**KM A1 S02**	2NC Snap action❶	Metal	5	❷
KB A1 A11	**KM A1 A11**	1NO+1NC Slow break make before break❶	Metal	5	❷
KB A1 L11	**KM A1 L11**	1NO+1NC Slow break❶	Metal	5	❷
KB A1 L02	**KM A1 L02**	2NC Slow break❶	Metal	5	❷
KB A1 L20	**KM A1 L20**	2NO Slow break	Metal	5	❷
KB A1 L12	**KM A1 L12**	1NO+2NC Slow break❶	Metal	5	❷
KB A1 L21	**KM A1 L21**	2NO+1NC Slow break❶	Metal	5	❷
KB A1 L03	**KM A1 L03**	3NC Slow break❶	Metal	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC A1 S11	**KN A1 S11**	1NO+1NC Snap action❶	Metal	5	❷
KC A1 S02	**KN A1 S02**	2NC Snap action❶	Metal	5	❷
KC A1 A11	**KN A1 A11**	1NO+1NC Slow break make before break❶	Metal	5	❷
KC A1 L11	**KN A1 L11**	1NO+1NC Slow break❶	Metal	5	❷
KC A1 L02	**KN A1 L02**	2NC Slow break❶	Metal	5	❷
KC A1 L20	**KN A1 L20**	2NO Slow break	Metal	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB A1 S11P



General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 5N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

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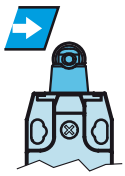
Wiring diagrams page W-11

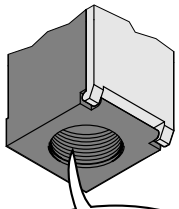
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Top roller push plunger



KB B... - KM B...

KC B... - KN B...

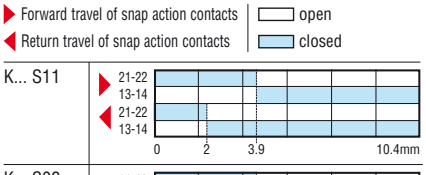


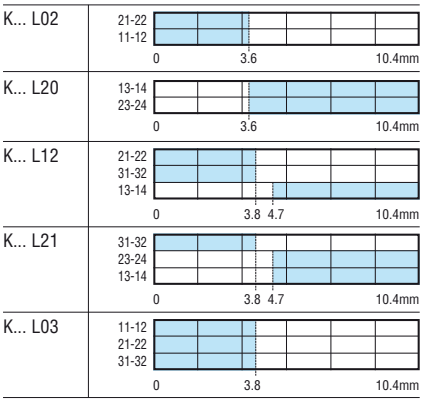
M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB B1 S11P

Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
			Ø11x4	n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB B1 S11	**KM B1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KB B2 S11	**KM B2 S11**		Metal	5	❷
KB B1 S02	**KM B1 S02**	2NC Snap action❶	Plastic	5	❷
KB B2 S02	**KM B2 S02**		Metal	5	❷
KB B1 A11	**KM B1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KB B2 A11	**KM B2 A11**		Metal	5	❷
KB B1 L11	**KM B1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KB B2 L11	**KM B2 L11**		Metal	5	❷
KB B1 L02	**KM B1 L02**	2NC Slow break❶	Plastic	5	❷
KB B2 L02	**KM B2 L02**		Metal	5	❷
KB B1 L20	**KM B1 L20**	2NO Slow break	Plastic	5	❷
KB B2 L20	**KM B2 L20**		Metal	5	❷
KB B1 L12	**KM B1 L12**	1NO+2NC Slow break❶	Plastic	5	❷
KB B2 L12	**KM B2 L12**		Metal	5	❷
KB B1 L21	**KM B1 L21**	2NO+1NC Slow break❶	Plastic	5	❷
KB B2 L21	**KM B2 L21**		Metal	5	❷
KB B1 L03	**KM B1 L03**	3NC Slow break❶	Plastic	5	❷
KB B2 L03	**KM B2 L03**		Metal	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC B1 S11	**KN B1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KC B2 S11	**KN B2 S11**		Metal	5	❷
KC B1 S02	**KN B1 S02**	2NC Snap action❶	Plastic	5	❷
KC B2 S02	**KN B2 S02**		Metal	5	❷
KC B1 A11	**KN B1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KC B2 A11	**KN B2 A11**		Metal	5	❷
KC B1 L11	**KN B1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KC B2 L11	**KN B2 L11**		Metal	5	❷
KC B1 L02	**KN B1 L02**	2NC Slow break❶	Plastic	5	❷
KC B2 L02	**KN B2 L02**		Metal	5	❷
KC B1 L20	**KN B1 L20**	2NO Slow break	Plastic	5	❷
KC B2 L20	**KN B2 L20**		Metal	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed





General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 5N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance

Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

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Accessories and spare parts pages 7-16 and 17

Dimensions page D-36

Wiring diagrams page W-11

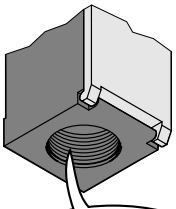
Limit, micro and foot switches

Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Roller centre push lever

KB C... - KM C...

KC C... - KN C...



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB C1 S11P

Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
			Ø11x4	n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB C1 S11	**KM C1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KB C2 S11	**KM C2 S11**		Metal	5	❷
KB C1 S02	**KM C1 S02**	2NC Snap action❶	Plastic	5	❷
KB C2 S02	**KM C2 S02**		Metal	5	❷
KB C1 A11	**KM C1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KB C2 A11	**KM C2 A11**		Metal	5	❷
KB C1 L11	**KM C1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KB C2 L11	**KM C2 L11**		Metal	5	❷
KB C1 L02	**KM C1 L02**	2NC Slow break❶	Plastic	5	❷
KB C2 L02	**KM C2 L02**		Metal	5	❷
KB C1 L20	**KM C1 L20**	2NO Slow break	Plastic	5	❷
KB C2 L20	**KM C2 L20**		Metal	5	❷
KB C1 L12	**KM C1 L12**	1NO+2NC Slow break❶	Plastic	5	❷
KB C2 L12	**KM C2 L12**		Metal	5	❷
KB C1 L21	**KM C1 L21**	2NO+1NC Slow break❶	Plastic	5	❷
KB C2 L21	**KM C2 L21**		Metal	5	❷
KB C1 L03	**KM C1 L03**	3NO Slow break❶	Plastic	5	❷
KB C2 L03	**KM C2 L03**		Metal	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC C1 S11	**KN C1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KC C2 S11	**KN C2 S11**		Metal	5	❷
KC C1 S02	**KN C1 S02**	2NC Snap action❶	Plastic	5	❷
KC C2 S02	**KN C2 S02**		Metal	5	❷
KC C1 A11	**KN C1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KC C2 A11	**KN C2 A11**		Metal	5	❷
KC C1 L11	**KN C1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KC C2 L11	**KN C2 L11**		Metal	5	❷
KC C1 L02	**KN C1 L02**	2NC Slow break❶	Plastic	5	❷
KC C2 L02	**KN C2 L02**		Metal	5	❷
KC C1 L20	**KN C1 L20**	2NO Slow break	Plastic	5	❷
KC C2 L20	**KN C2 L20**		Metal	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

General characteristics
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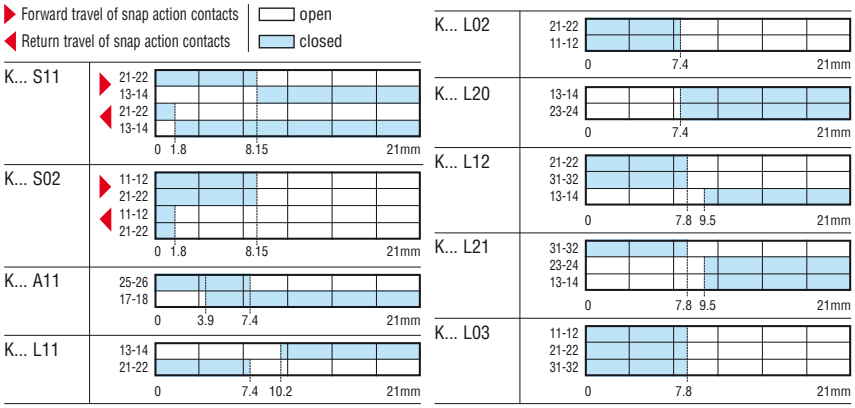
Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 6N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.



Accessories and spare parts pages 7-16 and 17
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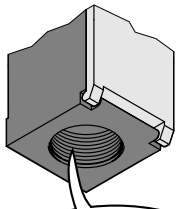
Wiring diagrams page W-11

Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Roller side push lever

KB D... - KM D...

KC D... - KN D...

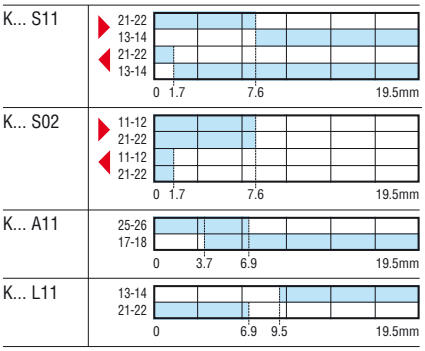


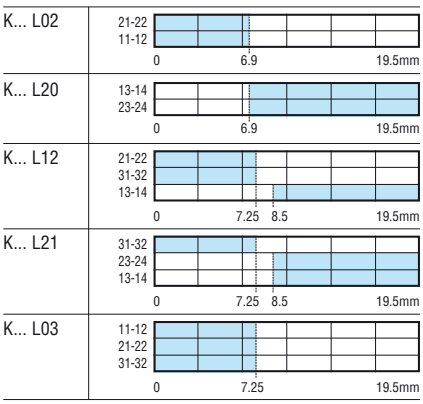
M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB D1 S11P

Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
			Ø11x4	n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB D1 S11	**KM D1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KB D2 S11	**KM D2 S11**		Metal	5	❷
KB D1 S02	**KM D1 S02**	2NC Snap action❶	Plastic	5	❷
KB D2 S02	**KM D2 S02**		Metal	5	❷
KB D1 A11	**KM D1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KB D2 A11	**KM D2 A11**		Metal	5	❷
KB D1 L11	**KM D1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KB D2 L11	**KM D2 L11**		Metal	5	❷
KB D1 L02	**KM D1 L02**	2NC Slow break❶	Plastic	5	❷
KB D2 L02	**KM D2 L02**		Metal	5	❷
KB D1 L20	**KM D1 L20**	2NO Slow break	Plastic	5	❷
KB D2 L20	**KM D2 L20**		Metal	5	❷
KB D1 L12	**KM D1 L12**	1NO+2NC Slow break❶	Plastic	5	❷
KB D2 L12	**KM D2 L12**		Metal	5	❷
KB D1 L21	**KM D1 L21**	2NO+1NC Slow break❶	Plastic	5	❷
KB D2 L21	**KM D2 L21**		Metal	5	❷
KB D1 L03	**KM D1 L03**	3NC Slow break❶	Plastic	5	❷
KB D2 L03	**KM D2 L03**		Metal	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC D1 S11	**KN D1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KC D2 S11	**KN D2 S11**		Metal	5	❷
KC D1 S02	**KN D1 S02**	2NC Snap action❶	Plastic	5	❷
KC D2 S02	**KN D2 S02**		Metal	5	❷
KC D1 A11	**KN D1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KC D2 A11	**KN D2 A11**		Metal	5	❷
KC D1 L11	**KN D1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KC D2 L11	**KN D2 L11**		Metal	5	❷
KC D1 L02	**KN D1 L02**	2NC Slow break❶	Plastic	5	❷
KC D2 L02	**KN D2 L02**		Metal	5	❷
KC D1 L20	**KN D1 L20**	2NO Slow break	Plastic	5	❷
KC D2 L20	**KN D2 L20**		Metal	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed





General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 6N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

Accessories and spare parts pages 7-16 and 17

Dimensions page D-36

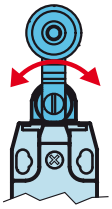
Wiring diagrams page W-11

Limit, micro and foot switches

Limit switches, K series

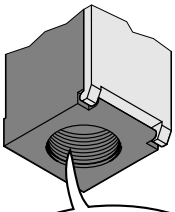
One bottom cable entry. Dimensions to EN 50047

Roller lever plunger



KB E1... - KB E2...
KM E1... - KM E2...

KB E3... - KM E3...



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB E1 S11P

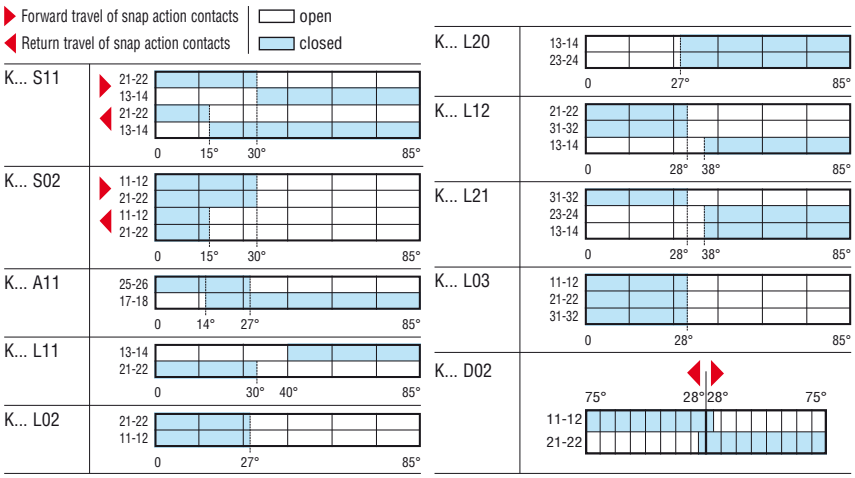
Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB E1 S11	**KM E1 S11**	1NO+1NC Snap action❸	Plastic❶	5	❹
KB E2 S11	**KM E2 S11**		Metal❶	5	❹
KB E3 S11	**KM E3 S11**		Rubber❷	5	❹
KB E1 S02	**KM E1 S02**	2NC Snap action❸	Plastic❶	5	❹
KB E2 S02	**KM E2 S02**		Metal❶	5	❹
KB E3 S02	**KM E3 S02**		Rubber	5	❹
KB E1 A11	**KM E1 A11**	1NO+1NC Slow break make before break❸	Plastic❶	5	❹
KB E2 A11	**KM E2 A11**		Metal❶	5	❹
KB E3 A11	**KM E3 A11**		Rubber❷	5	❹
KB E1 L11	**KM E1 L11**	1NO+1NC Slow break❸	Plastic❶	5	❹
KB E2 L11	**KM E2 L11**		Metal❶	5	❹
KB E3 L11	**KM E3 L11**		Rubber❷	5	❹
KB E1 L02	**KM E1 L02**	2NC Slow break❸	Plastic❶	5	❹
KB E2 L02	**KM E2 L02**		Metal❶	5	❹
KB E3 L02	**KM E3 L02**		Rubber❷	5	❹
KB E1 L20	**KM E1 L20**	2NO Slow break	Plastic❶	5	❹
KB E2 L20	**KM E2 L20**		Metal❶	5	❹
KB E3 L20	**KM E3 L20**		Rubber❷	5	❹
KB E1 L12	**KM E1 L12**	1NO+2NC Slow break❸	Plastic❶	5	❹
KB E2 L12	**KM E2 L12**		Metal❶	5	❹
KB E3 L12	**KM E3 L12**		Rubber❷	5	❹
KB E1 L21	**KM E1 L21**	2NO+1NC Slow break❸	Plastic❶	5	❹
KB E2 L21	**KM E2 L21**		Metal❶	5	❹
KB E3 L21	**KM E3 L21**		Rubber❷	5	❹
KB E1 L03	**KM E1 L03**	3NC Slow break❸	Plastic❶	5	❹
KB E2 L03	**KM E2 L03**		Metal❶	5	❹
KB E3 L03	**KM E3 L03**		Rubber❷	5	❹
BI-DIRECTIONAL. One bottom cable entry. Dimensions to EN 50047.					
KB E1 D02	**KM E1 D02**	2NC ❸ independent	Plastic❶	5	❺

❶ Ø19x5mm.
❷ Ø50x10mm.
❸ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❹ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB types
  - A300 Q300 for KM types
- Rated insulation voltage Ui:
  - 690V for KB types
  - 440V for KM types
- Rated impulse withstand voltage Uimp:
  - 6kVAC for KB types
  - 4kVAC for KM types
- Class II insulation for KB only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB types - Self-extinguishing double-insulation polymer thermoplastic
  - KM types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.



Accessories and spare parts pages 7-16 and 17
Dimensions pages D-36
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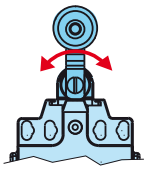
Limit switches, K series.
Two side cable entries. Dimensions compatible to EN 50047

Roller lever plunger

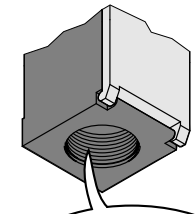


KC E1... - KC E2...
KN E1... - KN E2...

KC E3... - KN E3...

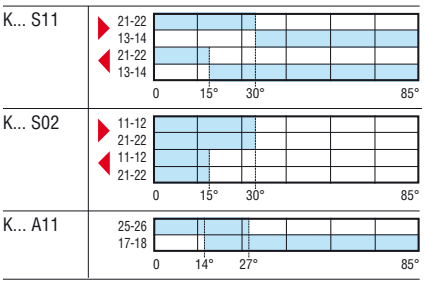
Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
				n°	[kg]
Two side cable entries. Dimensions compatible to EN 50047.					
KC E1 S11	**KN E1 S11**	1NO+1NC Snap action❸	Plastic❶	5	❹
KC E2 S11	**KN E2 S11**		Metal❶	5	❹
KC E3 S11	**KN E3 S11**		Rubber❷	5	❹
KC E1 S02	**KN E1 S02**	2NC Snap action❸	Plastic❶	5	❹
KC E2 S02	**KN E2 S02**		Metal❶	5	❹
KC E3 S02	**KN E3 S02**		Rubber	5	❹
KC E1 A11	**KN E1 A11**	1NO+1NC Slow break make before break❸	Plastic❶	5	❹
KC E2 A11	**KN E2 A11**		Metal❶	5	❹
KC E3 A11	**KN E3 A11**		Rubber❷	5	❹
KC E1 L11	**KN E1 L11**	1NO+1NC Slow break❸	Plastic❶	5	❹
KC E2 L11	**KN E2 L11**		Metal❶	5	❹
KC E3 L11	**KN E3 L11**		Rubber❷	5	❹
KC E1 L02	**KN E1 L02**	2NC Slow break❸	Plastic❶	5	❹
KC E2 L02	**KN E2 L02**		Metal❶	5	❹
KC E3 L02	**KN E3 L02**		Rubber❷	5	❹
KC E1 L20	**KN E1 L20**	2NO Slow break	Plastic❶	5	❹
KC E2 L20	**KN E2 L20**		Metal❶	5	❹
KC E3 L20	**KN E3 L20**		Rubber❷	5	❹
BI-DIRECTIONAL. Two side cable entries. Dimensions compatible to EN 50047.					
KC E1 D02	**KN E1 D02**	2NC ❸ independent	Plastic❶	5	❹

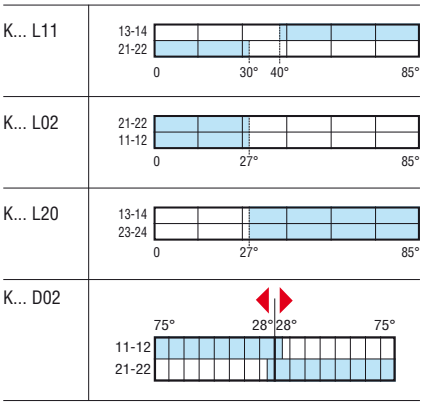
❶ Ø19x5mm.
❷ Ø50x10mm.
❸ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❹ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KC E1 S11P

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed





General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KC types
  - A300 Q300 for KN types
- Rated insulation voltage Ui:
  - 690VAC for KC types
  - 440VAC for KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KC types
  - 4kV for KN types
- Class II insulation for KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance

Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

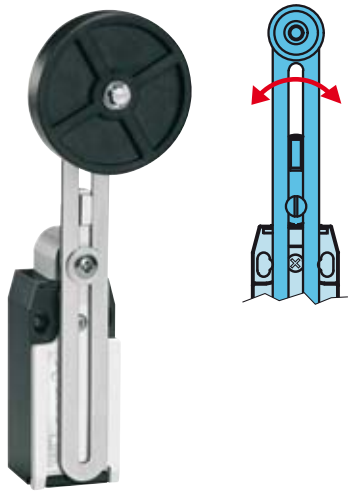
7

Limit, micro and foot switches

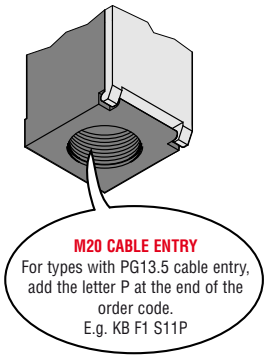
Limit switches, K series

One bottom cable entry. Dimensions to EN 50047

Adjustable Roller lever



KB F... - KB F...



Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB F1 S11	**KM F1 S11**	1NO+1NC Snap action❹	Plastic❶	5	❺
KB F2 S11	**KM F2 S11**		Metal❶	5	❺
KB F3 S11	**KM F3 S11**		Rubber❷	5	❺
KB F4 S11	**KM F4 S11**		Rubber❸	5	❺
KB F1 S02	**KM F1 S02**	2NC Snap action❹	Plastic❶	5	❺
KB F2 S02	**KM F2 S02**		Metal❶	5	❺
KB F3 S02	**KM F3 S02**		Rubber❷	5	❺
KB F4 S02	**KM F4 S02**		Rubber❸	5	❺
KB F1 A11	**KM F1 A11**	1NO+1NC Slow break make before break❹	Plastic❶	5	❺
KB F2 A11	**KM F2 A11**		Metal❶	5	❺
KB F3 A11	**KM F3 A11**		Rubber❷	5	❺
KB F4 A11	**KM F4 A11**		Rubber❸	5	❺
KB F1 L11	**KM F1 L11**	1NO+1NC Slow break❹	Plastic❶	5	❺
KB F2 L11	**KM F2 L11**		Metal❶	5	❺
KB F3 L11	**KM F3 L11**		Rubber❷	5	❺
KB F4 L11	**KM F4 L11**		Rubber❸	5	❺
KB F1 L02	**KM F1 L02**	2NC Slow break❹	Plastic❶	5	❺
KB F2 L02	**KM F2 L02**		Metal❶	5	❺
KB F3 L02	**KM F3 L02**		Rubber❷	5	❺
KB F4 L02	**KM F4 L02**		Rubber❸	5	❺
KB F1 L20	**KM F1 L20**	2NO Slow break	Plastic❶	5	❺
KB F2 L20	**KM F2 L20**		Metal❶	5	❺
KB F3 L20	**KM F3 L20**		Rubber❷	5	❺
KB F4 L20	**KM F4 L20**		Rubber❸	5	❺
KB F1 L12	**KM F1 L12**	1NO+2NC Slow break❹	Plastic❶	5	❺
KB F2 L12	**KM F2 L12**		Metal❶	5	❺
KB F3 L12	**KM F3 L12**		Rubber❷	5	❺
KB F4 L12	**KM F4 L12**		Rubber❸	5	❺
KB F1 L21	**KM F1 L21**	2NO+1NC Slow break❹	Plastic❶	5	❺
KB F2 L21	**KM F2 L21**		Metal❶	5	❺
KB F3 L21	**KM F3 L21**		Rubber❷	5	❺
KB F4 L21	**KM F4 L21**		Rubber❸	5	❺
KB F1 L03	**KM F1 L03**	3NC Slow break❹	Plastic❶	5	❺
KB F2 L03	**KM F2 L03**		Metal❶	5	❺
KB F3 L03	**KM F3 L03**		Rubber❷	5	❺
KB F4 L03	**KM F4 L03**		Rubber❸	5	❺
BI-DIRECTIONAL. One bottom cable entry. Dimensions to EN 50047.					
KB F1 D02	**KM F1 D02**	2NC ❸ independent	Plastic❶	5	❺

General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

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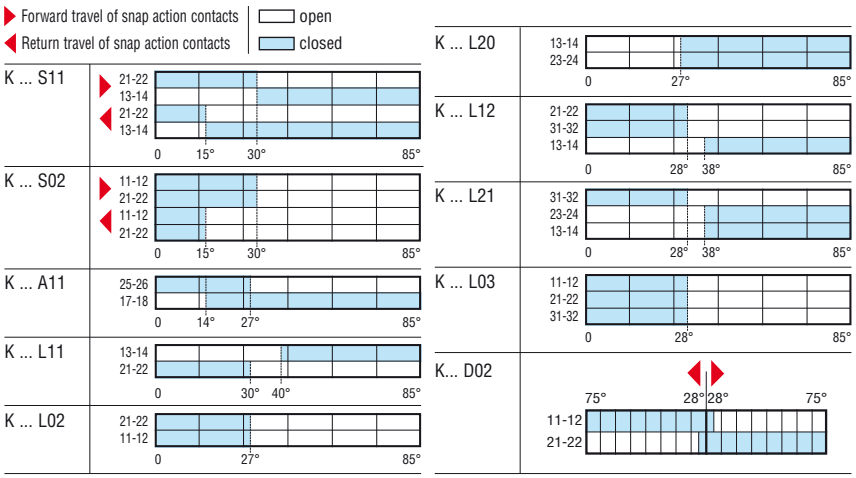
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB types
  - A300 Q300 for KM types
- Rated insulation voltage Ui:
  - 690V for KB types
  - 440V for KM types
- Rated impulse withstand voltage Uimp:
  - 6kVAC for KB types
  - 4kVAC for KM types
- Class II insulation for KB only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB types - Self-extinguishing double-insulation polymer thermoplastic
  - KM types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance

Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.



❶ Ø19x5mm.
❷ Ø50x10mm.
❸ Ø50x10mm with offset alignment.
❹ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❺ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

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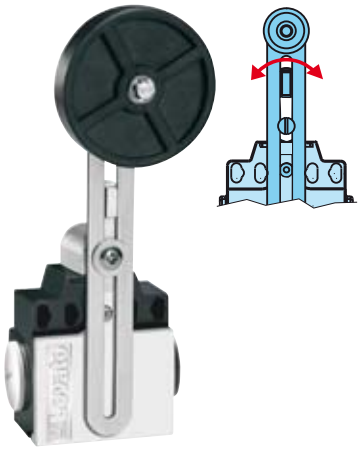
Wiring diagrams page W-11

Limit switches, K series
Two side cable entries. Dimensions compatible to EN 50047

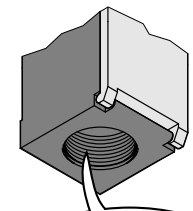
Adjustable Roller lever



KC F... - KN F...

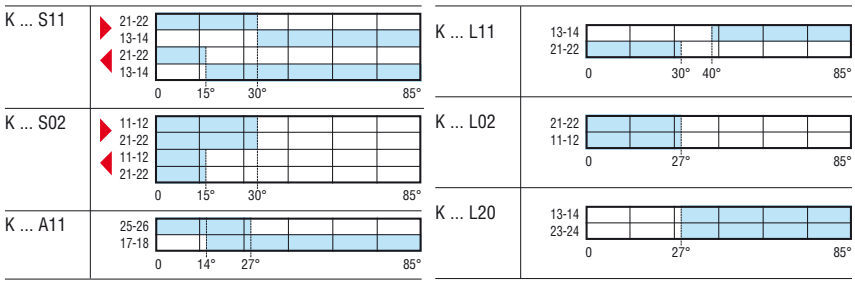
Order code Plastic body	Metal body	Contacts	Roller material	Qty per pkg	Wt
				n°	[kg]
Two side cable entries. Dimensions compatible to EN 50047.					
KC F1 S11	**KN F1 S11**	1NO+1NC Snap action❸	Plastic❶	5	❹
KC F2 S11	**KN F2 S11**		Metal❶	5	❹
KC F3 S11	**KN F3 S11**		Rubber❷	5	❹
KC F4 S11	**KN F4 S11**		Rubber off. align.❷	5	❹
KC F1 S02	**KN F1 S02**	2NC Snap action❸	Plastic❶	5	❹
KC F2 S02	**KN F2 S02**		Metal❶	5	❹
KC F3 S02	**KN F3 S02**		Rubber❷	5	❹
KC F4 S02	**KN F4 S02**		Rubber off. align.❷	5	❹
KC F1 A11	**KN F1 A11**	1NO+1NC Slow break make before break❸	Plastic❶	5	❹
KC F2 A11	**KN F2 A11**		Metal❶	5	❹
KC F3 A11	**KN F3 A11**		Rubber❷	5	❹
KC F4 A11	**KN F4 A11**		Rubber off. align.❷	5	❹
KC F1 L11	**KN F1 L11**	1NO+1NC Slow break❸	Plastic❶	5	❹
KC F2 L11	**KN F2 L11**		Metal❶	5	❹
KC F3 L11	**KN F3 L11**		Rubber❷	5	❹
KC F4 L11	**KN F4 L11**		Rubber off. align.❷	5	❹
KC F1 L02	**KN F1 L02**	2NC Slow break❸	Plastic❶	5	❹
KC F2 L02	**KN F2 L02**		Metal❶	5	❹
KC F3 L02	**KN F3 L02**		Rubber❷	5	❹
KC F4 L02	**KN F4 L02**		Rubber off. align.❷	5	❹
KC F1 L20	**KN F1 L20**	2NO Slow break	Plastic❶	5	❹
KC F2 L20	**KN F2 L20**		Metal❶	5	❹
KC F3 L20	**KN F3 L20**		Rubber❷	5	❹
KC F4 L20	**KN F4 L20**		Rubber off. align.❷	5	❹

❶ Ø19x5mm.
❷ Ø50x10mm (N.B. off. align. = offset alignment).
❸ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❹ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KC F1 S11P

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed



General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 180° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Rated thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KC types
  - A300 Q300 for KN types
- Conventional insulation voltage Ui:
  - 690VAC for KC types
  - 440VAC for KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KC types
  - 4kV for KN types
- Class II insulation for KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

7

Accessories and spare parts pages 7-16 and 17

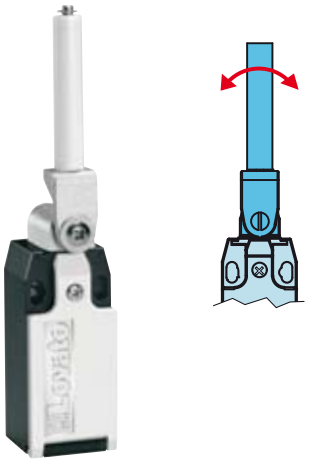
Dimensions pages D-36

Wiring diagrams page W-11

Limit, micro and foot switches

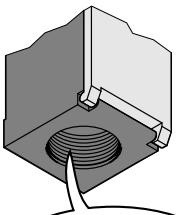
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Ceramic rod lever



KB H... - KM H...

KC H... - KN H...

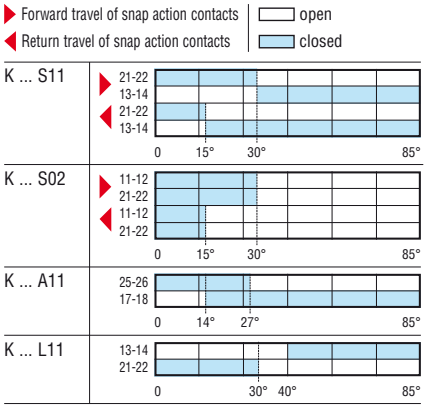


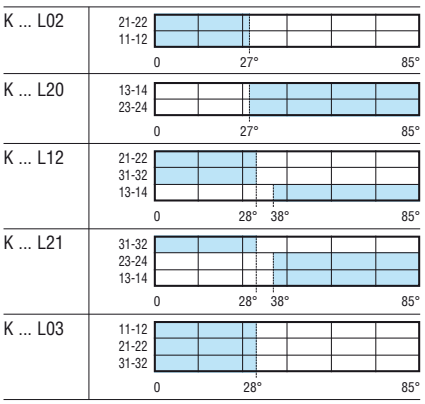
M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB L1 S11P

Order code Plastic body	Metal body	Contacts	Rod material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB H1 S11	**KM H1 S11**	1NO+1NC Snap action❶	Ceramic	5	❷
KB H1 S02	**KM H1 S02**	2NC Snap action❶	Ceramic	5	❷
KB H1 A11	**KM H1 A11**	1NO+1NC Slow break make before break❶	Ceramic	5	❷
KB H1 L11	**KM H1 L11**	1NO+1NC Slow break❶	Ceramic	5	❷
KB H1 L02	**KM H1 L02**	2NC Slow break❶	Ceramic	5	❷
KB H1 L20	**KM H1 L20**	2NO Slow break	Ceramic	5	❷
KB H1 L12	**KM H1 L12**	1NO+2NC Slow break❶	Ceramic	5	❷
KB H1 L21	**KM H1 L21**	2NO+1NC Slow break❶	Ceramic	5	❷
KB H1 L03	**KM H1 L03**	3NC Slow break❶	Ceramic	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC H1 S11	**KN H1 S11**	1NO+1NC Snap action❶	Ceramic	5	❷
KC H1 S02	**KN H1 S02**	2NC Snap action❶	Ceramic	5	❷
KC H1 A11	**KN H1 A11**	1NO+1NC Slow break make before break❶	Ceramic	5	❷
KC H1 L11	**KN H1 L11**	1NO+1NC Slow break❶	Ceramic	5	❷
KC H1 L02	**KN H1 L02**	2NC Slow break❶	Ceramic	5	❷
KC H1 L20	**KN H1 L20**	2NO Slow break	Ceramic	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed





General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

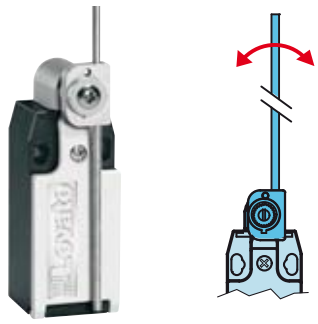
Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

Accessories and spare parts pages 7-16 and 17
Dimensions page D-36
Wiring diagrams page W-11

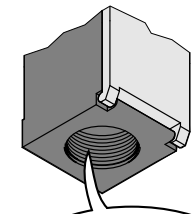
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Adjustable rod lever



KB L... - KM L...

KC L... - KN L...

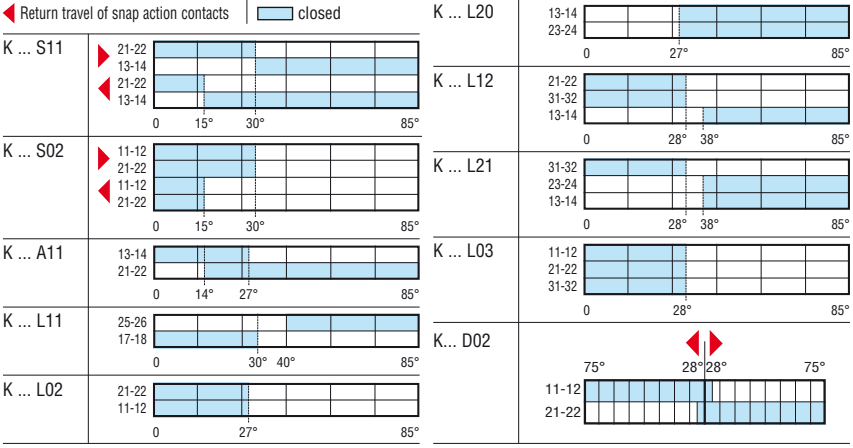


M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB L1 S11P

Order code Plastic body	Metal body	Contacts	Rod material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB L1 S11	**KM L1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KB L2 S11	**KM L2 S11**		Metal	5	❷
KB L1 S02	**KM L1 S02**	2NC Snap action❶	Plastic	5	❷
KB L2 S02	**KM L2 S02**		Metal	5	❷
KB L1 A11	**KM L1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KB L2 A11	**KM L2 A11**		Metal	5	❷
KB L1 L11	**KM L1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KB L2 L11	**KM L2 L11**		Metal	5	❷
KB L1 L02	**KM L1 L02**	2NC Slow break❶	Plastic	5	❷
KB L2 L02	**KM L2 L02**		Metal	5	❷
KB L1 L20	**KM L1 L20**	2NO Slow break	Plastic	5	❷
KB L2 L20	**KM L2 L20**		Metal	5	❷
KB L1 L12	**KM L1 L12**	1NO+2NC Slow break❶	Plastic	5	❷
KB L2 L12	**KM L2 L12**		Metal	5	❷
KB L1 L21	**KM L1 L21**	2NO+1NC Slow break❶	Plastic	5	❷
KB L2 L21	**KM L2 L21**		Metal	5	❷
KB L1 L03	**KM L1 L03**	3NC Slow break❶	Plastic	5	❷
KB L2 L03	**KM L2 L03**		Metal	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC L1 S11	**KN L1 S11**	1NO+1NC Snap action❶	Plastic	5	❷
KC L2 S11	**KN L2 S11**		Metal	5	❷
KC L1 S02	**KN L1 S02**	2NC Snap action❶	Plastic	5	❷
KC L2 S02	**KN L2 S02**		Metal	5	❷
KC L1 A11	**KN L1 A11**	1NO+1NC Slow break make before break❶	Plastic	5	❷
KC L2 A11	**KN L2 A11**		Metal	5	❷
KC L1 L11	**KN L1 L11**	1NO+1NC Slow break❶	Plastic	5	❷
KC L2 L11	**KN L2 L11**		Metal	5	❷
KC L1 L02	**KN L1 L02**	2NC Slow break❶	Plastic	5	❷
KC L2 L02	**KN L2 L02**		Metal	5	❷
KC L1 L20	**KN L1 L20**	2NO Slow break	Plastic	5	❷
KC L2 L20	**KN L2 L20**		Metal	5	❷
BI-DIRECTIONAL. One bottom cable entry. Dimensions to EN 50047.					
KB L1 D02	**KM L1 D02**	2NC ❶ Independent	Plastic❶	5	❷
KB L2 D02	**KM L2 D02**	2NC ❶ Independent	Metal❶	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

Forward travel of snap action contacts
Return travel of snap action contacts
open
closed



General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force:3Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

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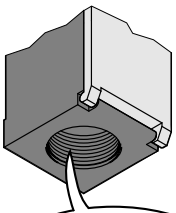
Limit, micro and foot switches

Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Wobble stick, omnidirectional

KB M1... - KM M1...

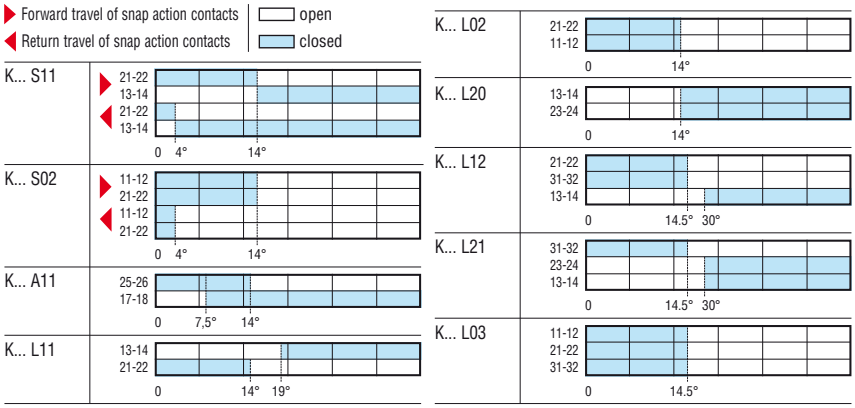
KC M2... - KN M2...



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB M1 S11P

Order code Plastic body	Metal body	Contacts	Rod material	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB M1 S11	**KM M1 S11**	1NO+1NC Snap action	Flexible	5	❶
KB M2 S11	**KM M2 S11**		Semirigid	5	❶
KB M1 S02	**KM M1 S02**	2NC Snap action	Flexible	5	❶
KB M2 S02	**KM M2 S02**		Semirigid	5	❶
KB M1 A11	**KM M1 A11**	1NO+1NC Slow break make before break	Flexible	5	❶
KB M2 A11	**KM M2 A11**		Semirigid	5	❶
KB M1 L11	**KM M1 L11**	1NO+1NC Slow break	Flexible	5	❶
KB M2 L11	**KM M2 L11**		Semirigid	5	❶
KB M1 L02	**KM M1 L02**	2NC Slow break	Flexible	5	❶
KB M2 L02	**KM M2 L02**		Semirigid	5	❶
KB M1 L20	**KM M1 L20**	2NO Slow break	Flexible	5	❶
KB M2 L20	**KM M2 L20**		Semirigid	5	❶
KB M1 L12	**KM M1 L12**	1NO+2NC Slow break	Flexible	5	❶
KB M2 L12	**KM M2 L12**		Semirigid	5	❶
KB M1 L21	**KM M1 L21**	2NO+1NC Slow break	Flexible	5	❶
KB M2 L21	**KM M2 L21**		Semirigid	5	❶
KB M1 L03	**KM M1 L03**	3NC Slow break	Flexible	5	❶
KB M2 L03	**KM M2 L03**		Semirigid	5	❶
Two side cable entries. Dimensions compatible to EN 50047.					
KC M1 S11	**KN M1 S11**	1NO+1NC Snap action	Flexible	5	❶
KC M2 S11	**KN M2 S11**		Semirigid	5	❶
KC M1 S02	**KN M1 S02**	2NC Snap action	Flexible	5	❶
KC M2 S02	**KN M2 S02**		Semirigid	5	❶
KC M1 A11	**KN M1 A11**	1NO+1NC Slow break make before break	Flexible	5	❶
KC M2 A11	**KN M2 A11**		Semirigid	5	❶
KC M1 L11	**KN M1 L11**	1NO+1NC Slow break	Flexible	5	❶
KC M2 L11	**KN M2 L11**		Semirigid	5	❶
KC M1 L02	**KN M1 L02**	2NC Slow break	Flexible	5	❶
KC M2 L02	**KN M2 L02**		Semirigid	5	❶
KC M1 L20	**KN M1 L20**	2NO Slow break	Flexible	5	❶
KC M2 L20	**KN M2 L20**		Semirigid	5	❶

❶ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.



General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 1Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

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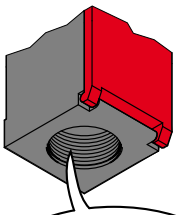
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Hinge operating

KB P... - KM P...

KC P... - KN P...



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB Q1 L11P

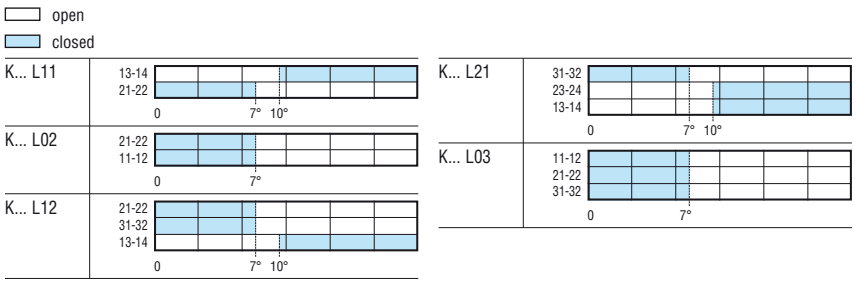
Order code Plastic body	Metal body	Contacts	Shaft features	Qty per pkg	Wt
				n°	[kg]
One bottom cable entry. Dimensions to EN 50047.					
KB P1 L11	**KM P1 L11**	1NO+1NC Slow break❶	Short cylinder	5	❷
KB P2 L11	**KM P2 L11**	1NO+1NC Slow break❶	Long solid	5	❷
KB P3 L11	**KM P3 L11**	1NO+1NC Slow break❶	Long solid w/ reduction	5	❷
KB P1 L02	**KM P1 L02**	2NC Slow break❶	Short cylinder	5	❷
KB P2 L02	**KM P2 L02**	2NC Slow break❶	Long solid	5	❷
KB P3 L02	**KM P3 L02**	2NC Slow break❶	Long solid w/ reduction	5	❷
KB P1 L12	**KM P1 L12**	1NO+2NC Slow break❶	Short cylinder	5	❷
KB P2 L12	**KM P2 L12**	1NO+2NC Slow break❶	Long solid	5	❷
KB P3 L12	**KM P3 L12**	1NO+2NC Slow break❶	Long solid w/ reduction	5	❷
KB P1 L21	**KM P1 L21**	2NO+1NC Slow break❶	Short cylinder	5	❷
KB P2 L21	**KM P2 L21**	2NO+1NC Slow break❶	Long solid	5	❷
KB P3 L21	**KM P3 L21**	2NO+1NC Slow break❶	Long solid w/ reduction	5	❷
KB P1 L03	**KM P1 L03**	3NC Slow break❶	Short cylinder	5	❷
KB P2 L03	**KM P2 L03**	3NC Slow break❶	Long solid	5	❷
KB P3 L03	**KM P3 L03**	3NC Slow break❶	Long solid w/ reduction	5	❷
Two side cable entries. Dimensions compatible to EN 50047.					
KC P1 L11	**KN P1 L11**	1NO+1NC Slow break❶	Short cylinder	5	❷
KC P1 L02	**KN P1 L02**	2NC Slow break❶	Short cylinder	5	❷
KC P1 L12	**KN P1 L12**	1NO+2NC Slow break❶	Short cylinder	5	❷
KC P1 L21	**KN P1 L21**	2NO+1NC Slow break❶	Short cylinder	5	❷
KC P1 L03	**KN P1 L03**	3NC Slow break❶	Short cylinder	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 15Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.



Accessories and spare parts pages 7-16 and 17

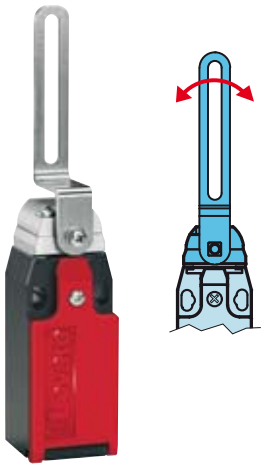
Dimensions page D-37

Wiring diagrams page W-11

Limit, micro and foot switches

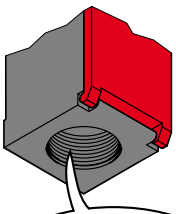
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Slotted lever



KB Q... - KM Q...

KC Q... - KN Q...

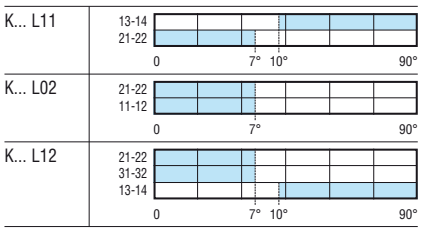


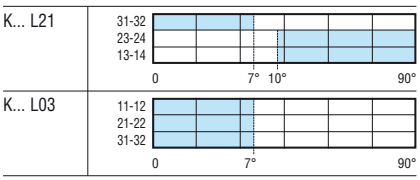
M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB Q1 L11P

Order code Plastic body	Metal body	Contacts	Qty per pkg	Wt
			n°	[kg]
One bottom cable entry. Dimensions to EN 50047.				
KB Q1 L11	**KM Q1 L11**	1NO+1NC Slow break❶	5	❷
KB Q1 L02	**KM Q1 L02**	2NC Slow break❶	5	❷
KB Q1 L12	**KM Q1 L12**	1NO+2NC Slow break❶	5	❷
KB Q1 L21	**KM Q1 L21**	2NO+1NC Slow break❶	5	❷
KB Q1 L03	**KM Q1 L03**	3NC Slow break❶	5	❷
Two side cable entries. Dimensions compatible to EN 50047.				
KC Q1 L11	**KN Q1 L11**	1NO+1NC Slow break❶	5	❷
KC Q1 L02	**KN Q1 L02**	2NC Slow break❶	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.

open
closed





General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- Rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 15Ncm
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

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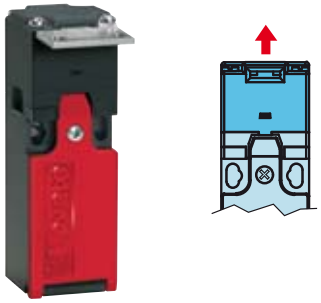
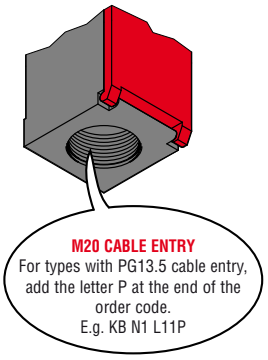
Limit switches, K series
One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Key operated



KB N...

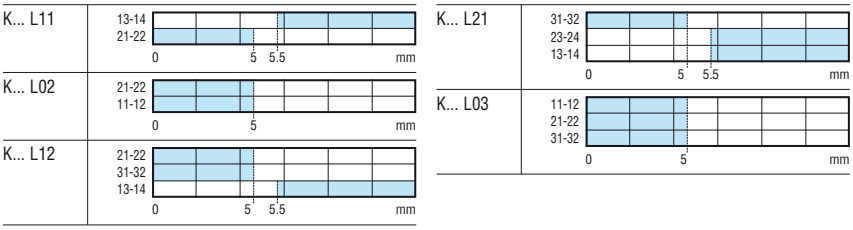
KC N...



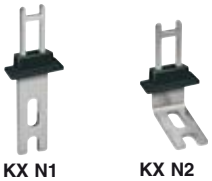
Order code Plastic body	Contacts	Key shape❸	Qty per pkg	Wt
			n°	[kg]
One bottom cable entry. Dimensions to EN 50047.				
KB N1 L11	1NO+1NC Slow break❶	Straight	5	❷
KB N2 L11		Angled	5	❷
KB N3 L11		Straight “T”	5	❷
KB N4 L11		Angled “T”	5	❷
KB N1 L02	2NC Slow break❶	Straight	5	❷
KB N2 L02		Angled	5	❷
KB N3 L02		Straight “T”	5	❷
KB N4 L02		Angled “T”	5	❷
KB N1 L12	1NO+2NC Slow break❶	Straight	5	❷
KB N2 L12		Angled	5	❷
KB N3 L12		Straight “T”	5	❷
KB N4 L12		Angled “T”	5	❷
KB N1 L21	2NO+1NC Slow break❶	Straight	5	❷
KB N2 L21		Angled	5	❷
KB N3 L21		Straight “T”	5	❷
KB N4 L21		Angled “T”	5	❷
KB N1 L03	3NC Slow break❶	Straight	5	❷
KB N2 L03		Angled	5	❷
KB N3 L03		Straight “T”	5	❷
KB N4 L03		Angled “T”	5	❷
Two side cable entries. Dimensions compatible to EN 50047.				
KC N1 L11	1NO+1NC Slow break❶	Straight	5	❷
KC N2 L11		Angled	5	❷
KC N3 L11		Straight “T”	5	❷
KC N4 L11		Angled “T”	5	❷
KC N1 L02	2NC Slow break❶	Straight	5	❷
KC N2 L02		Angled	5	❷
KC N3 L02		Straight “T”	5	❷
KC N4 L02		Angled “T”	5	❷

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.
❸ The key is standard supplied.

open
closed



Accessories and spare parts for key operated switches



KX N1

KX N2

KX N3

KX N4

KX N5

Order code	Description	Qty per pkg	Wt
		n°	[kg]
K X N1	Straight key	5	❷
K X N2	Angled key	5	❷
K X N3	Straight “T” key	5	❷
K X N4	Angled “T” key	5	❷
K X N5	Toggle key	5	❷

❷ Contact our Customer Service (Tel. +39 035 4282422) for details.

General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable.
The heads have axial rotation in any of 4 positions at 90° angles.
The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1: A600 Q600
- Rated insulation voltage Ui: 690V
- Rated impulse withstand voltage Uimp: 6kV
- Class II insulation
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing
- Housing and operators in self-extinguishing double-insulation polymer thermoplastic
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 8N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1.

Accessories and spare parts pages 7-16 and 17
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Auxiliary contact blocks

K X B...

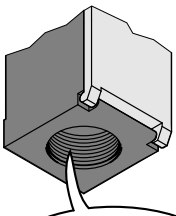
Order code	Contacts	Qty per pkg	Wt
		n°	[kg]
KX B S11	1NO+1NC Snap action❶❷	10	0.024
KX B S02	2NC Snap action❶❷	10	0.024
KX B A11	1NO+1NC Slow break, make before break❶❷	10	0.024
KX B L11	1NO+1NC Slow break❷	10	0.024
KX B L02	2NC Slow break❷	10	0.024
KX B L20	2NO Slow break	10	0.024
KX B L12	1NO+2NC Slow break❷❸	10	0.024
KX B L21	2NO+1NC Slow break❷❸	10	0.024
KX B L03	3NC Slow break❷❸	10	0.024

❶ Not suitable for key operated KBN / KCN, hinged operating KBP / KCP / KMP / KNP and slotted lever KBQ / KCQ / KMQ / KNQ types.
❷ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❸ Not suitable for KC and KN types.

Body complete with auxiliary contacts

KX CB... - KX CM...

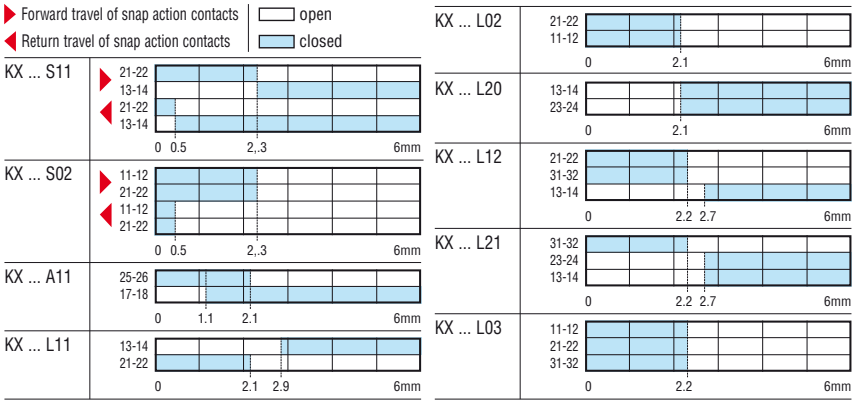
KX CC... - KX CN...



M20 CABLE ENTRY
For types with PG13.5 cable entry, add the letter P at the end of the order code.
E.g. KB Q1 L11P

Order code Plastic body	Order code Metal body	Contacts	Qty per pkg	Wt
			n°	[kg]
One bottom cable entry. Dimensions to EN 50047.				
KX CB S11	**KX CM S11**	1NO+1NC Snap action❶❷	10	❹
KX CB S02	**KX CM S02**	2NC Snap action❶❷	10	❹
KX CB A11	**KX CM A11**	1NO+1NC Slow break, make before break❶❷	10	❹
KX CB L11	**KX CM L11**	1NO+1NC Slow break❷	10	❹
KX CB L02	**KX CM L02**	2NC Slow break❷	10	❹
KX CB L20	**KX CM L20**	2NO Slow break	10	❹
KX CB L12	**KX CM L12**	1NO+2NC Slow break❷❸	10	❹
KX CB L21	**KX CM L21**	2NO+1NC Slow break❷❸	10	❹
KX CB L03	**KX CM L03**	3NC Slow break❷❸	10	❹
Two side cable entries. Dimensions compatible to EN 50047.				
KX CC S11	**KX CN S11**	1NO+1NC Snap action❶❷	10	❹
KX CC S02	**KX CN S02**	2NC Snap action❶❷	10	❹
KX CC A11	**KX CN A11**	1NO+1NC Slow break, make before break❶❷	10	❹
KX CC L11	**KX CN L11**	1NO+1NC Slow break❷	10	❹
KX CC L02	**KX CN L02**	2NC Slow break❷	10	❹
KX CC L20	**KX CN L20**	2NO Slow break	10	❹

❶ Not suitable for key operated KBN / KCN, hinged operating KBP / KCP / KMP / KNP and slotted lever KBQ / KCQ / KMQ / KNQ types.
❷ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❸ Not suitable for KC and KN types.
❹ Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for details.



General characteristics
The KXB contact blocks can be used with the K series of limit switches. Combinations of 2 contacts with slow-break or snap action and 3 slow-break contacts, for KB and KM types only, are available.
The NC contacts have direct opening operation, a specific safety principle.
The particular four-point contacts warrant high conductivity in any sort of application. The removal of the contacts from the limit switch body provides remarkable wiring ease and reduces installation time as well.
The KX C... bodies, complete with auxiliary contacts, can be used as spare parts for the K series limit switches or coupled with the KX A... operating heads, to obtain complete limit switches in the required configurations.
The body cover is hinged at the bottom and removable to have the best access. Each body includes the innovative locking bayonet mechanism of the operating head. Plastic and metal types are available.

Operational characteristics
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q300 for KX CB-KX CC types
  - A300 Q300 for KX CM-KX CN types
- Rated insulation voltage Ui:
  - 690VAC for KX CB-KX CC types
  - 440VAC for KX CM-KX CN types
- Rated impulse withstand voltage Uimp:
  - 6kV for KX CB-KX CC types
  - 4kV for KX CM-KX CN types
- Class II insulation for KX CB-KX CC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Cable connection: Self-releasing screw terminal
- Degree of protection:
  - IP20 for terminals
  - IP65 for body housing (with operating head mounted)
- Housing:
  - KX CB-KX CC types - Self-extinguishing double-insulation polymer thermoplastic
  - KX CM-KX CN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Tightening torque for body fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: GOST for all, cULus for KX C... body types only and c UL us for auxiliary contacts only.
Comply with standards: EN50047, IEC/EN 60947-1, IEC/EN60947-5-1, IEC/EN 60204-1.

Accessories page 7-17
Dimensions pages D-36 and 37
Wiring diagrams page W-11

Limit switches, K series
Accessories and spare parts
for KB, KC, KM and KN type limit switches

Operating heads


KX A A1 KX A B1 KX A B2


KX A C1 KX A C2


KX A D1 KX A D2


KX A E1 KX A E2 KX A E3


KX A F1 KX A F2


KX A F3 KX A F4 KX A H1


KX A L1 KX A L2 KX A M1 KX A M2

Order code	Description	Qty per pkg	Wt
		n°	[kg]
KX A A1	Top push rod plunger	5	0.010
KX A B1	Plastic top roller push plunger	5	0.015
KX A B2	Metal top roller push plunger	5	0.015
KX A C1	Plastic roller centre push lever	5	0.015
KX A C2	Metal roller centre push lever	5	0.020
KX A D1	Plastic roller side push lever	5	0.015
KX A D2	Metal roller side push lever	5	0.020
KX A E1	Plastic roller lever plunger	5	0.035
KX A E2	Metal roller lever plunger	5	0.045
KX A E3	Rubber Ø50x10mm roller lever plunger	5	0.050
KX A F1	Adjustable plastic roller lever Ø19x5mm	5	0.050
KX A F2	Adjustable metal roller lever Ø19x5mm	5	0.060
KX A F3	Adjustable rubber Ø50x10mm roller lever	5	0.065
KX A F4	Adjustable offset rubber Ø50x10mm roller lever	5	0.070
KX A H1	Ceramic rod lever	5	0.050
KX A L1	Adjustable plastic rod lever	5	0.040
KX A L2	Adjustable metal rod lever	5	0.050
KX A M1	Flexible wobble stick	5	0.030
KX A M2	Semirigid wobble stick	5	0.025

General characteristics
The KX A... operating heads can be used as spare parts for the K series limit switches or coupled with the KX C... bodies to obtain complete limit switches in the required configurations.
The heads are made of metal and warrant sturdiness and operating reliability in all conditions.
The shape of the coupling section with the body of the K series switches consents to orient the head in any 45° angle position while the initial level and rod position can be adjusted 360° at 15° angle positions.
The head fixing to the body is achieved by the innovative locking bayonet mechanism so there is no need of tooling.

Cable glands and cable conduit


KX P... KX P03

Order code	Description	Qty per pkg	Wt
		n°	[kg]
KX P01	M20 cable gland	5	0.009
KX P02	PG13.5 cable gland	5	0.009
KX P03	M20 rubber cable conduit	50	0.004

General characteristics
The cable glands are in plastic with either M20 or PG13.5 thread and provide to keep the cable in place and maintain the proper IP protection of the limit switch after installation.

Operational characteristics for cable gland
- Material: Self-extinguishing polyamide
- Degree of protection: IP68
- Gland seal with cable diameter: 6-12mm.

Certifications and compliance
Certifications obtained: cULus for cable glands, GOST for all. Compliant with standards: EN 50262.

Dimensions
pages D-36 and 37

Prewired metal limit switches

new


KP A1...


KP A2...


KP B1...


KP B2...


KP B3...


KP B4...


KP B5...


KP B6...


KP B7...


KP B8...


KP E1...


KP E2...


KP F1...


KP L2...

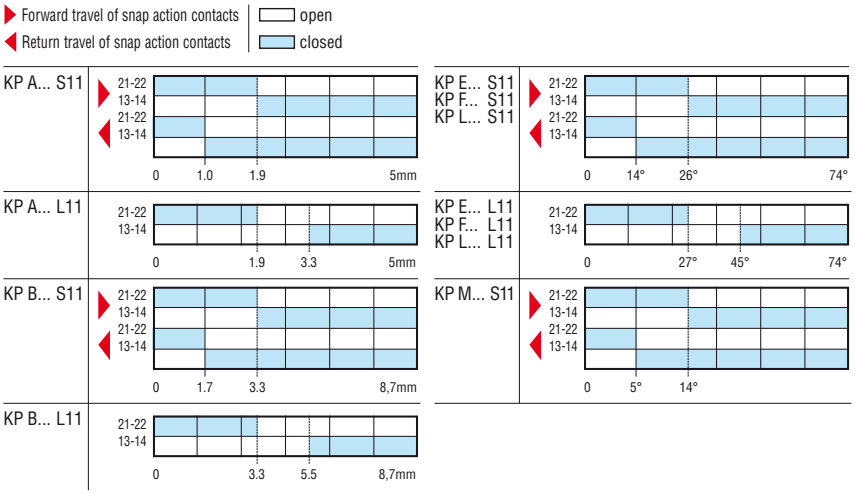

KP M2 S11

Order code	Contacts	Cable length ❷	Qty per pkg	Wt
		m	n°	[kg]
TOP PUSH ROD PLUNGER.				
KP A1 S11	1NO+1NC Snap action❶	2	1	0.283
KP A1 L11	1NO+1NC Slow break❶	2	1	0.283
KP A2 S11❸	1NO+1NC Snap action❶	2	1	0.294
KP A2 L11❸	1NO+1NC Slow break❶	2	1	0.294
TOP ROLLER PUSH PLUNGER.				
KP B1 S11	1NO+1NC Snap action❶	2	1	0.281
KP B1 L11	1NO+1NC Slow break❶	2	1	0.281
KP B2 S11	1NO+1NC Snap action❶	2	1	0.283
KP B2 L11	1NO+1NC Slow break❶	2	1	0.283
KP B3 S11❹	1NO+1NC Snap action❶	2	1	0.281
KP B3 L11❹	1NO+1NC Slow break❶	2	1	0.281
KP B4 S11❹	1NO+1NC Snap action❶	2	1	0.282
KP B4 L11❹	1NO+1NC Slow break❶	2	1	0.281
M12 HEAD TOP ROLLER PUSH PLUNGER.				
KP B5 S11	1NO+1NC Snap action❶	2	1	0.299
KP B5 L11	1NO+1NC Slow break❶	2	1	0.299
KP B6 S11	1NO+1NC Snap action❶	2	1	0.301
KP B6 L11	1NO+1NC Slow break❶	2	1	0.301
KP B7 S11❹	1NO+1NC Snap action❶	2	1	0.300
KP B7 L11❹	1NO+1NC Slow break❶	2	1	0.300
KP B8 S11❹	1NO+1NC Snap action❶	2	1	0.300
KP B8 L11❹	1NO+1NC Slow break❶	2	1	0.300
ROLLER LEVER PLUNGER.				
KP E1 S11	1NO+1NC Snap action❶	2	1	0.324
KP E1 L11	1NO+1NC Slow break❶	2	1	0.324
KP E2 S11	1NO+1NC Snap action❶	2	1	0.324
KP E2 L11	1NO+1NC Slow break❶	2	1	0.324
ADJUSTABLE ROLLER LEVER.				
KP F1 S11	1NO+1NC Snap action❶	2	1	0.333
KP F1 L11	1NO+1NC Slow break❶	2	1	0.333
ADJUSTABLE ROD LEVER.				
KP L2 S11	1NO+1NC Snap action❶	2	1	0.335
KP L2 L11	1NO+1NC Slow break❶	2	1	0.335
OMNIDIRECTIONAL WOBBLE STICK.				
KP M2 S11	1NO+1NC Snap action❶	2	1	0.289

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ For prewired switches with 1m long wire only, add suffix 010 at the end of the order code.
Example: KP A1 S11 010 for prewired switch, top push metal rod plunger, with 1NO+1NC snap action contacts and 1m long wire.
❸ M12 head fixing.
❹ Roller operation perpendicular to switch body.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- Conventional thermal current Ith: 5A
- Designation to IEC/EN 60947-5-1: B300 R300
- Rated insulation voltage Ui: 400VAC
- Rated impulse withstand voltage Uimp: 4kV
- Class I insulation
- Contact resistance: <25mΩ
- 2 metre long cable❷ (5 cores, each 0.75mm²/18 AWG)
- Degree of protection: IP67 for body housing
- Body housing: aluminium - zinc alloy
- Operating force:
  - KP A types: 15N
  - KP B types: 10N
  - KP E, KP F and KP L types: 0.08Nm
  - KP M types: 0.1Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1.



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T series plastic limit switches
Dimensions to EN 50041

Top push rod plunger

TS1... - TL1...

TS2... - TL2...

Order code	Contacts	Plunger material	Qty per pkg	Wt
			n°	[kg]
Without reset button.				
TS1 01 10	1NO+1NC Snap action	Steel	1	0.120
TL1 01 10	1NO+1NC ❶ Slow break	Steel	1	0.120
With reset button on front.				
TS2 01 10	1NO+1NC Snap action	Steel	1	0.130
TL2 01 10	1NO+1NC ❶ Slow break	Steel	1	0.130

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Roller lever

TS1... - TL1...

TS2... - TL2...

Order code	Contacts	Roller material	Qty per pkg	Wt
			n°	[kg]
Without reset button.				
TS1 05 20 A❷	1NO+1NC Snap action	Plastic 20x5	1	0.120
TS1 05 21 A		Metal 20x5	1	0.125
TS1 05 24 A❸		Rubber 50x10	1	0.135
TL1 05 20 A❷	1NO+1NC ❶ Slow break	Plastic 20x5	1	0.120
TL1 05 21 A		Metal 20x5	1	0.125
TL1 05 24 A❸		Rubber 50x10	1	0.135
With reset button.				
TS2 05 20 AS❷	1NO+1NC Snap action	Plastic 20x5	1	0.130
TS2 05 21 AS		Metal 20x5	1	0.135
TS2 05 24 AS❸		Rubber 50x10	1	0.145
TL2 05 20 AS❷	1NO+1NC ❶ Slow break	Plastic 20x5	1	0.130
TL2 05 21 AS		Metal 20x5	1	0.135
TL2 05 24 AS❸		Rubber 50x10	1	0.145

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Roller lever plunger limit switches with 30x5mm plastic roller are available and can be ordered substituting the number 20 with 23 in the above-given order codes.
❸ Roller lever plunger limit switches with 35x15mm rubber roller are available and can be ordered substituting the number 24 with 22 in the above-given order codes.

Type	Forward travel of snap action contacts / Return travel of snap action contacts	open / closed
TS1 01... TS2 01...	21-22 13-14 / 21-22 13-14	0 [mm] 6
TL1 01... TL2 01...	21-22 13-14	0 [mm] 6
TS1 05... TS2 05...	21-22 13-14 / 21-22 13-14	0 60°
TL1 05... TL2 05...	21-22 13-14	0 60°

General characteristics
The TS-TL series limit switches are designed and manufactured according to European standards EN 50041 for dimensions.
The insulated housing of the limit switch is made of self-extinguishing thermoplastic giving excellent mechanical stability and is suitable, as a result, for assembly on machinery or installations in the general-purpose industrial field as well as saline environments (for example close by the sea).
The housing sturdiness consents to the mounting of limit switches in heavy duty applications.
The double-insulated housing of the limit switch warrants and protects internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact.
The contacts are dimensioned to ensure self cleaning of the silver-alloy contact surfaces. Contacts (NC) of the TL series have direct opening operation to prevent sticking or welding.

Operational characteristics
- Maximum operating rate: 1200 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles (100,000 cycles only for reset button versions)
- Utilisation category:
  - DC13 duty: 1.5A 24V
  - AC15 duty: 6A 250V
- Conventional thermal current Ith: 6A
- Rated insulation voltage Ui: 250VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP66
- Housing cable entry: PG13.5
- Cable connection: Self-releasing screw terminal
- Operating force: 6N (TS...01 and TL...01)
- Operating force: 3Ncm (TS...05 and TL...05)
- TS...05 and TL...05 have axial rotation in any of 4 positions (90°)
- TS...05 and TL...05 have lever inclination, 360° adjustment
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, EN81-1, EN 50041.

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Limit, micro and foot switches

T series plastic limit switches
Dimensions to EN 50041

Wobble stick, omnidirectional

TS1... - TL1...

Order code	Contacts	Rod material	Qty per pkg	Wt
			n°	[kg]
Without reset button.				
TS1 09 92	1NO+1NC Snap action	Flexible	1	0.115
TL1 09 92	1NO+1NC Slow break	Flexible	1	0.115

Type	Forward travel of snap action contacts / Return travel of snap action contacts	open / closed
TS1 09...	21-22 / 13-14 ; 21-22 / 13-14	0 ... 36°
TL1 09...	21-22 / 13-14	0 ... 36°
TL2 10...	21-22 / 13-14	0 [mm] 4.2

Key operated

TL2...

Order code	Contacts	Key shape ❸	Qty per pkg	Wt
			n°	[kg]
Without reset button. Front key withdrawal ❷.				
TL2 10 10	1NO+1NC ❶ Slow break	Straight	1	0.120
TL2 10 11		Angled	1	0.120
TL2 10 12		Angled "T"	1	0.120
TL2 10 13		Straight "T"	1	0.120

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.
❷ Version with key withdrawal on the left or on the right is available; replace the last letter (A) of the order code respectively with S or D (e.g. TL2 10 10S - left or TL2 10 10D - right). For further assistance, contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com).
❸ The key is standard supplied.

A 20746

A 20747

P 32753

P 32752

A 20748

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Extra keys.			
A 20746	Straight key	10	0.013
A 20747	Angled key	10	0.013
P 32753	Angled "T" key	10	0.008
P 32752	Straight "T" key	10	0.008
A 20748	Toggle key	2	0.085

General characteristics
The TS-TL series limit switches are designed and manufactured according to European standards EN 50041 for dimensions.
The insulated housing of the limit switch is made of self-extinguishing thermoplastic giving excellent mechanical stability and is suitable, as a result, for assembly on machinery or installations in the general-purpose industrial field as well as saline environments (for example close by the sea).
The housing sturdiness consents to the mounting of limit switches in heavy duty applications.
The double-insulated housing of the limit switch warrants and protects internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact.
The contacts are dimensioned to ensure self cleaning of the silver-alloy contact surfaces. Contacts (NC) of the TL series have direct opening operation to prevent sticking or welding.

Operational characteristics
- Maximum operating rate: 1200 cycles/h
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Utilisation category:
  - DC13 duty: 1.5A 24V
  - AC15 duty: 6A 250V
- Conventional thermal current Ith: 6A
- Rated insulation voltage Ui: 250VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP66
- Housing cable entry: PG13.5
- Cable connection: Self-releasing screw terminal
- Operating force: 1Ncm (TS1 09... and TL1 09...)
- Operating force: 8N (TL2 10...)
- TL2 10... has axial rotation in any of 4 positions (90°)
- TL2 10... has vertical or sideways key withdrawal
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, EN81-1, EN 50041.

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Top push rod plunger

PLN...A...

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
PLN A1 A	1NC❶	IP40	1	0.240
PLN A1 A W		IP65	1	0.240
PLN A2 A	2NC❶	IP40	1	0.240
PLN A2 A W		IP65	1	0.240
PLN C1 A	1NO	IP40	1	0.240
PLN C1 A W		IP65	1	0.240
PLN C2 A	2NO	IP40	1	0.240
PLN C2 A W		IP65	1	0.240
PLN U1 A	1NO+1NC	IP40	1	0.240
PLN U1 A W		IP65	1	0.240

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Top roller push plunger

PLN...R...

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
PLN A1 R	1NC❶	IP40	1	0.230
PLN A1 R W		IP65	1	0.230
PLN A2 R	2NC❶	IP40	1	0.230
PLN A2 R W		IP65	1	0.230
PLN C1 R	1NO	IP40	1	0.230
PLN C1 R W		IP65	1	0.230
PLN C2 R	2NO	IP40	1	0.230
PLN C2 R W		IP65	1	0.230
PLN U1 R	1NO+1NC	IP40	1	0.230
PLN U1 R W		IP65	1	0.230

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Roller centre push lever

PLN...H

PLN...HSB W

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
PLN A1 H	1NC❶	IP40	1	0.270
PLN A1 H W		IP65	1	0.270
PLN A2 H	2NC❶	IP40	1	0.270
PLN A2 H W		IP65	1	0.270
PLN U1 H	1NO+1NC	IP40	1	0.270
PLN U1 H W		IP65	1	0.270
With offset roller.				
PLN A1 HSB	1NC❶	IP40	1	0.290
PLN A1 HSB W		IP65	1	0.290
PLN A2 HSB	2NC❶	IP40	1	0.290
PLN A2 HSB W		IP65	1	0.290
PLN U1 HSB	1NO+1NC	IP40	1	0.290
PLN U1 HSB W		IP65	1	0.290

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Type	Travel [mm] (open / closed)
PLN A1 A... PLN A1 R...	1.5 — 11.5 [mm]
PLN A1 H... PLN A1 HSB...	2.4 — 20 [mm]
PLN A2 A... PLN A2 R...	1.5 — 6.5 [mm]
PLN A2 H... PLN A2 HSB...	2.4 — 11.5 [mm]
PLN C1 A... PLN C1 R...	2.2 — 11.5 [mm]
PLN C2 A... PLN C2 R...	4.2 — 6.4 [mm]
PLN U1 A... PLN U1 R...	1.5 — 11.5 — 5.9 [mm]
PLN U1 H... PLN U1 HSB...	2.4 — 20 — 10.4 [mm]

General characteristics

The PLN types are for general purpose use. The extensive range of models with numerous of actuators and multiple contact configurations is the optimal solution to the diverse installation requirements.
Overall simple design, oversize contacts and choice materials ensure durable and safe operation. The metal alloy housing and resistant thermoplastic actuators warrant reliable heavy-duty features for any sort of operating conditions.
The PLN series limit switches are available with IP40 or IP65 degree of protection; this characteristic is ensured by the use of appropriate sealing gasket.
The IP65 version is easily identified by the "W" suffix of its order code and can be used in adverse ambient conditions.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- Utilisation category:
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V, 3A 400V
- Conventional thermal current Ith: 10A
- Rated insulation voltage Ui: 400VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP40 / IP65 (see table indications)
- Housing cable entry: PG11 (PLN...W types only, complete with cable gland)
- Cable connection: screw terminal with clamp suitable for cables up to 2.5mm^2
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance

Certifications obtained: IMQ, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, EN81-1.

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Limit, micro and foot switches
PL series metal limit switches

Latch and manual release

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
Top roller push plunger.				
PLN A1 RAG	1NC ❶	IP40	1	0.220
PLN A1 RAG W	1NC ❶	IP65	1	0.230

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

PLN A1 RAG

Manual reload and magnetic release

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
Top push rod plunger.				
PL A1 AM	1NC ❶	IP40	1	0.245
PL A1 AM W	1NC ❶	IP65	1	0.250
Top roller push plunger.				
PL A1 RM	1NC ❶	IP40	1	0.250
PL A1 RM W	1NC ❶	IP65	1	0.260

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

PL A1 AM

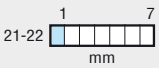
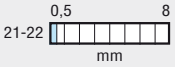
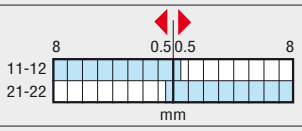
PL A1 RM W

Bi-directional

Order code	Contacts	Degree of protection	Qty per pkg	Wt
			n°	[kg]
Rod plunger.				
PLN 978	2NC ❶ Independent	IP65	1	0.265

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

PLN 978

Type	Travel [mm] (The arrows indicate the direction of operation)	open / closed
PLN A1 RAG PLN A1 RAG W		
PL A1 AM PL A1 AM W PL A1 RM PL A1 RM W		
PLN 978		

General characteristics
The PLN limit switches were initially made specifically for hoisting or lifting duty then used in other diverse applications. The type with latch and manual release as well as the one with manual reload and magnetic release are designed so the switch remains opened after the switching of the NC contact. In the first instance, the contact closing is made by pushing the release button. In the second case, the reloading is obtained by pushing the shaft end or else pulling from the top for the IP65 types.
The limit switches with dual operation can be replaced by two standard switches, for the stop control of moving mechanisms with two directions of running (e.g. automatic doors). It is equipped with two opposed operating mechanisms and one NC contact for each mechanism (i.e. 2NC).
The simple constructive design, oversize contacts and careful material combinations warrant safe and constant operation. The metal-alloy housing and the thermoplastic mechanism material of first-rate mechanical features assure reliability and durability with any type of operating condition.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- Utilisation category:
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V, 3A 400V
- Conventional thermal current Ith: 10A
- Rated insulation voltage: 400VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP40 / IP65 (see table indications)
- Housing cable entry: PG11 (PL...W and PLN 978 types only, complete with cable gland)
- Cable connection: screw terminal with clamp suitable for cables up to 2.5mm^2
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: IMQ, GOST.
Compliant with standards: IEC/EN 60947-5-1, IEC/EN 60204-1, IEC/EN 60081-1.

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Rope-pull lever limit switches for normal stopping

Rope lever for normal stopping

RS1 13 10
RS2 13 10
RS3 13 10

Order code	Contacts	Ring material	Qty per pkg	Wt
			n°	[kg]
Without reset button.				
RS1 13 10	1NO+1NC Snap action	Steel	1	0.090
RS2 13 10	1NO+1NC Slow break	Steel	1	0.090
RS3 13 10	2NO Slow break	Steel	1	0.090

Rope lever for normal stopping

TS1 13 - TL1 10

Order code	Contacts	Ring material	Qty per pkg	Wt
			n°	[kg]
Without reset button.				
TS1 13 10	1NO+1NC Snap action	Steel	1	0.117
TL1 13 10	1NO+1NC Slow break	Steel	1	0.117

Type	Forward travel of snap action contacts / Return travel of snap action contacts — open / closed
RS1 13...	21-22, 13-14 / 21-22, 13-14 — 0 [mm] 6
RS2 13...	21-22, 13-14 — 0 [mm] 6
RS3 13...	21-22, 11-12 — 0 [mm] 6
TS1 13...	21-22, 13-14 / 21-22, 13-14 — 0 [mm] 6
TL1 13...	21-22, 13-14 — 0 [mm] 6

General characteristics
The RS and T series limit switches are designed and manufactured according to European standards for dimensions and operating characteristics.
The double-insulated housing of the limit switch is made of glass-reinforced self-extinguishing polyamide resin to protect internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact.
The contacts are dimensioned to ensure self cleaning of the silver-alloy contact surfaces.

Operational characteristics
- Maximum operating rate: 3600 cycles/h for RS...13 10; 1200 cycles/h for T...13 10
- Switching time: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- Utilisation category
  - DC13 duty: 1.5A 24V
  - AC15 duty: 6A 250V
- Conventional thermal current Ith: 10A
- Rated insulation voltage Ui: 250VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP65 for RS...13 10; IP66 for T...13 10
- Cable entry: PG11 for RS...13 10; PG13.5 for T...13 10
- Cable connection: Self-releasing screw terminal
- Operating force: 25N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance
Certifications obtained: cULus, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, EN81-1, EN 50041.

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Rope lever for normal stopping

PLN...AT...W

Order code	Contacts	Degree of protection	Operating force	Qty per pkg	Wt
			[N]	n°	[kg]
Without reset button					
PLN U1 AT	1NO+1NC ❶	IP40	10	1	0.240
PLN U1 AT W		IP65	10	1	0.240
PLN U1 AT25	1NO+1NC ❶	IP40	25	1	0.240
PLN U1 AT25 W		IP65	25	1	0.240

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Rope lever for normal stopping

P2L...

Order code	Contacts	Degree of protection	Operating force	Qty per pkg	Wt
			[N]	n°	[kg]
Without reset button.					
P2L8 13 11	1NO+1NC ❶	IP65	40	1	0.459
P2L8 13 12		IP65	120	1	0.459
P2L10 13 11	2NO+2NC ❶	IP65	40	1	0.459
P2L10 13 12		IP65	120	1	0.459

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Type	Travel [mm]	open / cloed
PLN U1 AT...	1,5 — 11 — 6 mm	
P2L 8...	11-12, 21-22 — 0 mm 10	
P2L 10...	31-32, 41-42, 13-14, 23-24 — 0 mm 10	

General characteristics

The PLN and P2L types are limit switches for general use.
The simple constructive design, oversize contacts and careful material combinations warrant safe and constant operation. The metal-alloy housing and the thermoplastic mechanism material of first-rate mechanical features assure reliability and durability with any type of operating condition.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- Utilisation category
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V; 3A 400V
- Conventional thermal current Ith: 10A for PLN types; 6A for P2L types
- Rated insulation voltage Ui: 400VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP40 / IP65 (see table indications)
- Cable entry: PG11 (PLN...W and P2L types only, complete with cable gland)
- Cable connection: Self-releasing screw terminal
- Operating force: 25N
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Certifications and compliance

Certifications obtained: IMQ.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, EN81-1.

Rope-pull lever safety limit switches for emergency stopping ISO 13850 (EN418) compliant
Accessories and spare parts

Rope lever for emergency stopping

RS13 13 10 TL13 13 10

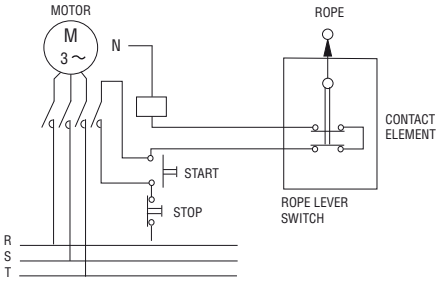
PLN 13 13 11

P2L...

Order code	Contacts	Force	Qty per pkg	Wt
		[N]	n°	[kg]
With reset button.				
RS13 13 10	1NO + 1NC❶	25	1	0.092
TL13 13 10	1NO + 1NC❶	25	1	0.125
PLN13 13 11	1NO + 1NC❶	60	1	0.248
P2L13 13 11	1NO + 1NC❶	40	1	0.459
P2L13 13 12	1NO + 1NC❶	120	1	0.459
P2L15 13 11	2NO + 2NC❶	40	1	0.459
P2L15 13 12	2NO + 2NC❶	120	1	0.459

❶ Direct opening operation ⊖; safety function according to IEC/EN 60947-5-1.

Example of wiring diagram



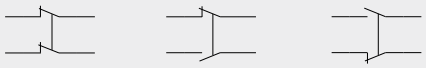
General characteristics

The rope-operated safety switches for emergency stop are mainly suitable for emergency stop or alarm systems for machinery which occupies a large space. This emergency stop can be achieved from any point when the rope is manually pulled each time.
The choice of the body, between plastic and metal, can satisfy the most diversified requirements for sturdiness and size.

Operational characteristics

- Maximum operating rate: 1800 cycles/h
- Mechanical life: 100,000 cycles
- Utilisation category
  - DC13 duty: 1.5A 24V (10A 24V only for PLN-P2L)
  - AC15 duty: 6A 250V (3A 400V only for PLN-P2L)
- Conventional thermal current Ith:
  10A for RS, TL and PLN; 6A for P2L
- Rated insulation voltage Ui:
  250VAC (400V for PLN-P2L)
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG quick fuse
- Degree of protection: IP65 (T series: IP66)
- Cable entry: PG11 for RS, PLN and P2L types only (PLN and P2L complete with cable gland); PG13.5 for TL13 only
- Cable connection: Self-releasing screw terminal
- Tightening torque for switch fixing: 2.5Nm
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree: 3.

Operation



Certification and compliance

Certifications obtained: cULus for RS13 and TL13 types only; GOST for all.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, ISO 13850 (EN 418).

Accessories and spare parts

P33032

P33033

P33034

P33035

P33036

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Accessories.			
P33032	Rope terminal clamp, Ø5mm	10	0.023
P33033	Rope eye, Ø5mm	10	0.007
P33034	Turnbuckle M6x60	10	0.061
P33035	Eye bolt M8	10	0.030
P33036	Steel rope, Ø5mm❶	100[m]	4.900

❶ The P33036 rope is sold in 100m roll.

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Wiring diagrams page W-11

Limit, micro and foot switches

Limit switches, K series

Plastic micro switches

Micro switches


KS A1...


KS A2...


KS A3...


KS A4...


KS A9...


KS B1...


KS B2...


KS C1...


KS C2...


KS C3...


KS C9...


KS L1...


KS L2...


KS L3...


KSS C01


KSS CB2

Order code	Contacts	Terminal	Qty per pkg	Wt
			n°	[kg]
TOP PUSH ROD - METAL PLUNGER. Pin.				
KS A1 S	1NO/NC	Solder	10	0.027
KS A1 V	1NO/NC	Screw	10	0.027
KS A1 F	1NO/NC	Faston	10	0.029
TOP PUSH ROD - METAL PLUNGER. High rod plunger.				
KS A2 S	1NO/NC	Solder	10	0.029
KS A2 V	1NO/NC	Screw	10	0.029
KS A2 F	1NO/NC	Faston	10	0.031
TOP PUSH ROD - METAL PLUNGER. Low rod plunger.				
KS A3 S	1NO/NC	Solder	10	0.029
KS A3 V	1NO/NC	Screw	10	0.028
KS A3 F	1NO/NC	Faston	10	0.030
TOP PUSH ROD - METAL PLUNGER. M12 fixing head.				
KS A4 S	1NO/NC	Solder	10	0.048
KS A4 V	1NO/NC	Screw	10	0.047
KS A4 F	1NO/NC	Faston	10	0.049
PUSH BUTTON.				
KS A9 S	1NO/NC	Solder	10	0.029
KS A9 V	1NO/NC	Screw	10	0.028
KS A9 F	1NO/NC	Faston	10	0.030
TOP ROLLER PUSH PLUNGER. M12 fixing head.				
KS B1 S	1NO/NC	Solder	10	0.061
KS B1 V	1NO/NC	Screw	10	0.060
KS B1 F	1NO/NC	Faston	10	0.062
TOP ROLLER PUSH PLUNGER. M12 fixing head, 90° roller.				
KS B2 S	1NO/NC	Solder	10	0.061
KS B2 V	1NO/NC	Screw	10	0.060
KS B2 F	1NO/NC	Faston	10	0.062
ROLLER CENTRE PUSH LEVER. 26.6mm long lever.				
KS C1 S	1NO/NC	Solder	10	0.032
KS C1 V	1NO/NC	Screw	10	0.031
KS C1 F	1NO/NC	Faston	10	0.033
ROLLER CENTRE PUSH LEVER. 48.5mm long lever.				
KS C2 S	1NO/NC	Solder	10	0.032
KS C2 V	1NO/NC	Screw	10	0.031
KS C2 F	1NO/NC	Faston	10	0.033
ROLLER CENTRE PUSH LEVER. 38mm long lever.				
KS C3 S	1NO/NC	Solder	10	0.032
KS C3 V	1NO/NC	Screw	10	0.031
KS C3 F	1NO/NC	Faston	10	0.033
ROLLER CENTRE PUSH LEVER. One-way roller lever.				
KS C9 S	1NO/NC	Solder	10	0.034
KS C9 V	1NO/NC	Screw	10	0.033
KS C9 F	1NO/NC	Faston	10	0.035
METAL LEVER. 63mm long flat lever.				
KS L1 S	1NO/NC	Solder	10	0.032
KS L1 V	1NO/NC	Screw	10	0.031
KS L1 F	1NO/NC	Faston	10	0.033
METAL LEVER. 54mm long flat lever.				
KS L2 S	1NO/NC	Solder	10	0.032
KS L2 V	1NO/NC	Screw	10	0.031
KS L2 F	1NO/NC	Faston	10	0.033
METAL LEVER. 168.3mm long flat cylindrical lever.				
KS L3 S	1NO/NC	Solder	10	0.032
KS L3 V	1NO/NC	Screw	10	0.031
KS L3 F	1NO/NC	Faston	10	0.033
ACCESSORIES				
KSS C01	Terminal shroud		10	0.006
KSS CB2	Terminal shroud with conduit		10	0.014

Operational characteristics

- Maximum operating rate: 240 cycles/min
- Switching time: 0.01-1ms
- Mechanical life: 20 million cycles
- Conventional thermal current Ith: 15A
- Designation to IEC/EN 60947-5-1: A600 P300
- Rating: AC15 240VAC 6.3A
- Rated insulation voltage Ui: 250VAC
- Contact resistance: <15mΩ
- 2 metre long cable ❷; 5 cores, each 0.75mm/AWG18
- Degree of protection: IP00 or IP20 with terminal shroud
- Body housing: polymer thermoplastic
- Operating force:
  - KS A1-KS A4 and KS B types: 2.5N
  - KS A9 and KS C3 types: 1.5N
  - KS C1 types: 1N
  - KS C2 and KS L2: 1.3N
  - KS C9 types: 1.7N
  - KS L1 types: 6.4N
  - KS L3 types: 0.1N
- Tightening torques:
  - For M12 head fixing: 4.9-6.9Nm
  - For side screws: 0.6-1Nm
  - For terminal screws: 0.7-1Nm
- Ambient conditions:
  - Operating termperature: -25...+70°C
  - Storage temperature: -40...+70°C.

Certifications and compliance

Certifications obtained: c UL us, GOST.
Compliance with standards: IEC/EN 60947-1, IEC/EN 60947-5-1.

Dimensions page D-41

Wiring diagrams page W-11