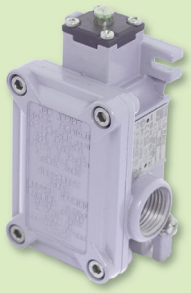
POSITION SWITCHES

series **LS**

Protection		Zone			
Gas	1-2	II2G	Ex db IIB+H_2 T6÷T5 Gb
Dusts	21-22	II2D	Ex tb IIIC T85°C÷T100°C Db

Degree of Protection	IP66

Amb. Temp.				
Standard	-20°C	+40°C
Extended	-50°C	+80°C



Entries Threading	NPT ANSI B1.20
Material	Aluminum light alloy
Painting	External epoxy RAL7000

Standards and Certificates

Directive 2014/34/EU (ATEX)
EN 60079-0 • EN 60079-1
EN 60079-31
CE BVI 13 ATEX 0084

IECEx
IEC 60079-0 • IEC 60079-1
IEC 60079-31
IECEx EPS 13.0034

- Ideal for use in dangerous process in hazardous environments: simple and rugged construction, compact size with the possibility of entry and branching on the three sides of the enclosure.
- Complete with two plugs for closing unused entries.
- Wide range of actuators in metal or in self-estinguishing glass-fiber-reinforced polymer (GFRP).
- Wide variety of options for adaptation and assembly.
- Internal operating rod in Stainless Steel AISI 303 on OT 58 UNI 5705/65 brass bushing.
- External screws in Stainless Steel except for actuators that may have components in tropicalized steel.

D

Options

- Contact Units for currents and/or voltages beyond the standard.
- Cable entry with metric thread M20x1.5 (M).
- Rollers in Metal.
- Different diameters rollers.
- Actuators with some metal parts in Stainless Steel.

Degree of pollution: 3 conforming to IEC/EN 60947-5-1 Standards.
Frequency of operations: 20/min (*) max
Number of cycles: 8÷10 millions
Storage Temperature: -40°C ÷ +85°C

Contact Unit

Nominal current (active): : 10 A
Insulating Voltage: U_i= 500 V_{ac} / 600 V_{dc}
Short Circuit Protection: 10 A Fuse
Minimum conductor section :1.5 mm²
Max Current Density: : 5 A/mm²

	AC15 - A600				DC13 - Q600		
U_e (V)	24	130	240	400	24	110	250
I_e (A)	10	5.5	3	1.8	2.8	0.6	0.27

Electrical Diagram

Type	Contact	Diagram	Operating
C2	1NO+1NC 1NO+1NC	13 21 43 31 14 22 44 32	Snap action
C3I	1NC+1NC	11 21 12 22	Simultaneous snap action
C4I	1NO+1NO	13 23 14 24	Simultaneous slow action
C5I	1NC+1NO	21 13 22 14	Snap action
C6I	1NC+1NO	21 13 22 14	Non overlapping slow action
C7I	1NC+1NO	21 13 22 14	Overlapping slow action
C9I	2NC	11 21 12 22	Simultaneous slow action

Contacts identification (by numbers) in compliance with IEC/EN 60947-1 Standards
All types (except C2) allow different voltages at the contacts terminals.
For type C2 the contacts 13-14 and 21-22 are electrically separated from contacts 31-32 and 43-44.

Positive opening of contacts ⊖ (**) for some models available in compliance with IEC/EN 60947-5-1 e CEI 17-45 - F. 1914 Standards.

NOTES

To read the installation and maintenance instructions is reccommended.

The temperature class T6/T85°C considers an Ambient Temperature (A.T.) extended up to +60°C, whereas, class T5/T100°C considers an A.T. extended up to +80°C.

(*) For A.T. up to +40°C the max surface temperature is 65°C reducing the number of operations to 600/h.

(**) As safety switches only those with ⊖ symbol shall be used.

The safety circuit must always be connected to NC contacts (11-12 or 21-22). Exceed by 1.5 mm (25°) the gap between the contacts. Operate the switch with the indicated opening force.

POSITION SWITCHES

D

Swivel heads
All switches allow to rotate the head by 90° x90° by unscrewing the four fixing screws (fig. 1).

Adjustable levers
Position switches with roller lever have the lever adjustable by 10° x 10° (fig. 2). The positive movement transmission is always ensured by the particular geometric coupling between the lever and the shaft.

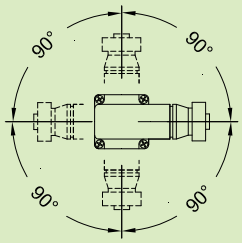


Fig. 1

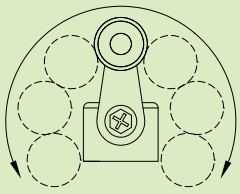
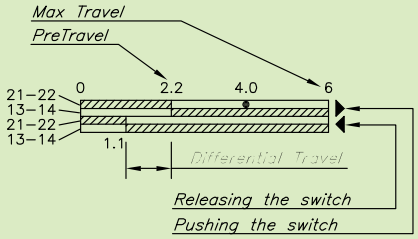
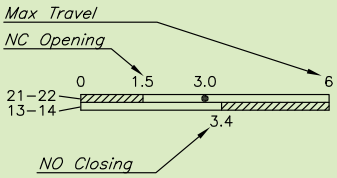
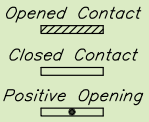


Fig. 2

Stroke diagrams







Example: LS 5101M

Order coding

Type	Contact Unit	Actuator	Threading
LS	C51	01	**N** = NPT (N) **M** = metric (M)

Series LS: AVAILABLE MODELS

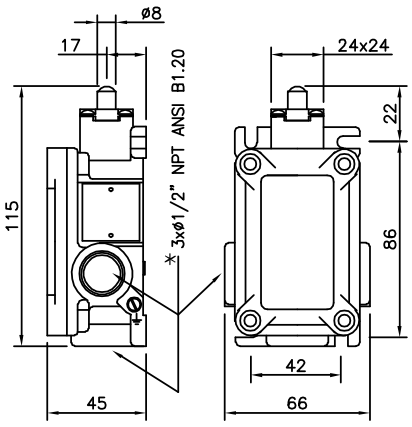
✸ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

A PERNO IN ACCIAIO
With push button stainless steel

VELOCITA' MASSIMA: *Max speed* 0.5 m/s
FORZA MIN. DI AZIONAMENTO: *Min. force actuation:* 15 N
FORZA MIN. PER APERTURA POSITIVA: *Min. force positive opening operation:* 30 N

LEGENDA
Legenda

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

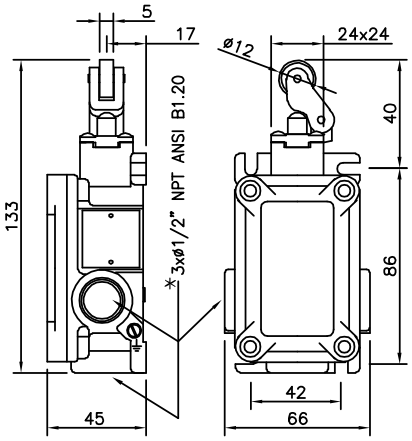


A LEVA SEMPLICE CON ROTELLA
With simple roller lever

VELOCITA' MASSIMA: *Max speed* 1.0 m/s
FORZA MIN. DI AZIONAMENTO: *Min. force actuation:* 7 N
FORZA MIN. PER APERTURA POSITIVA: *Min. force positive opening operation:* 24 N

LEGENDA
Legenda

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*



UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*
C51 1NC+1NO	LS5101N ✸	0 2.5 4.1 5.6 / 1.3
C61 1NC+1NO	LS6101N ✸	0 1.6 3.2 5.6 / 2.5
C71 1NC+1NO	LS7101N	0 2.9 4.5 5.6 / 1.5
C91 1NC+1NC	LS9101N	0 1.5 3.1 5.6
C41 1NO+1NO	LS4101N	0 1.4 5.6
C31 1NC+1NC	LS3101N	0 2.4 4.0 5.6 / 1.3
C2 1NO+1NC 1NO+1NC	LS201N ✸	0 1.3 6 / 0.7
C51 1NC+1NO	LS5102N ✸	0 9.0 14.5 21.0 / 4.9
C61 1NC+1NO	LS6102N ✸	0 6.0 10.5 21.0 / 8.6
C71 1NC+1NO	LS7102N	0 10.2 14.6 21.0 / 5.4
C91 1NC+1NC	LS9102N	0 5.7 10.2 21.0
C41 1NO+1NO	LS4102N	0 5.3 21.0
C31 1NC+1NC	LS3102N	0 8.6 13.1 21.0 / 5.1
C2 1NO+1NC 1NO+1NC	LS202N ✸	0 2.0 8.0 / 1.1

✳IN ALTERNATIVA: *Alternative:* M20x1.5 ISO 262

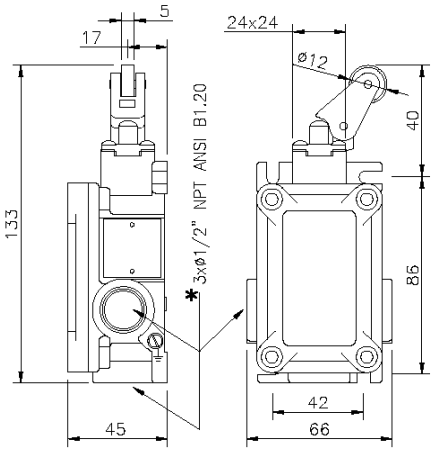
✱ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

A LEVA ANGOLARE CON ROTELLA
With angular roller lever

VELOCITA' MASSIMA: *Max speed* 1.0 m/s
FORZA MIN. DI AZIONAMENTO: *Min. force actuation:* 7 N
FORZA MIN. PER APERTURA POSITIVA: *Min. force positive opening operation:* 24 N

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

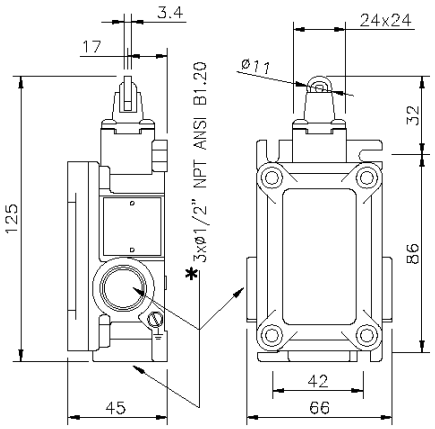


A PERNO CON ROTELLA
With push button roller

VELOCITA' MASSIMA: *Max speed* 0.3 m/s
FORZA MIN. DI AZIONAMENTO: *Min. force actuation:* 12 N
FORZA MIN. PER APERTURA POSITIVA: *Min. force positive opening operation:* 30 N

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

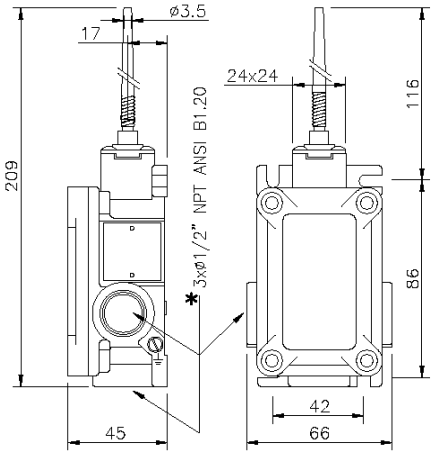


AD ASTA CON MOLLA INOX
With spring rod stainless steel

VELOCITA' MASSIMA: *Max speed* 1.0 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.12 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* – Nm

LEGENDA *Legenda*

- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

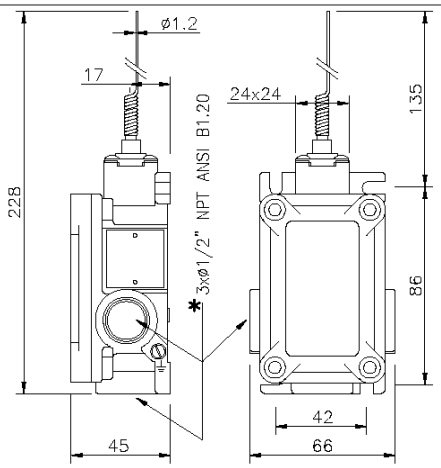


A STELO CON MOLLA INOX
With spring rod stainless steel

VELOCITA' MASSIMA: *Max speed* 1.0 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.12 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* – Nm

LEGENDA *Legenda*

- PREMENDO *Pushing*
- RILASCIANDO *Releasing*



✱IN ALTERNATIVA: *Alternative:* M20x1.5 ISO 262

UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*
C5 1NC+1NO	LS5105N ✱	21-22 / 13-14 / 21-22 / 13-14 — 0 — 9.0 — 14.5 — 21.0 — 4.9
C6 1NC+1NO	LS6105N ✱	21-22 / 13-14 — 0 — 6.0 — 10.5 — 21.0 — 8.6
C7 1NC+1NO	LS7105N	21-22 / 13-14 — 0 — 10.2 — 14.6 — 21.0 — 5.4
C9 1NC+1NC	LS9105N	11-12 / 21-22 — 0 — 5.7 — 10.2 — 21.0
C4 1NO+1NO	LS4105N	13-14 / 23-24 — 0 — 5.3 — 21.0
C3 1NC+1NC	LS3105N	11-12 / 21-22 / 11-12 / 21-22 — 0 — 8.6 — 13.1 — 21.0 — 5.1
C2 1NO+1NC 1NO+1NC	LS205N ✱	13-14 / 21-22 / 43-44 / 31-32 — 0 — 1.6 — 8.0 — 0.9
C5 1NC+1NO	LS5115N	21-22 / 13-14 / 21-22 / 13-14 — 0 — 4.7 — 7.6 — 9.6 — 2.5
C6 1NC+1NO	LS6115N ✱	21-22 / 13-14 — 0 — 3.2 — 6.0 — 9.6 — 4.8
C7 1NC+1NO	LS7115N	21-22 / 13-14 — 0 — 5.3 — 8.2 — 9.6 — 3.0
C9 1NC+1NC	LS9115N	11-12 / 21-22 — 0 — 3.0 — 5.9 — 9.6
C4 1NO+1NO	LS4115N	13-14 / 23-24 — 0 — 2.8 — 9.6
C3 1NC+1NC	LS3115N	11-12 / 21-22 / 11-12 / 21-22 — 0 — 4.5 — 7.4 — 9.8 — 2.5
C2 1NO+1NC 1NO+1NC	LS21N5N ✱	13-14 / 21-22 / 43-44 / 31-32 — 0 — 1.3 — 6.0 — 0.7
C5 1NC+1NO	LS5120N ✱	21-22 / 13-14 / 21-22 / 13-14 — 0° — 23° — 12°
C6 1NC+1NO	LS6120N ✱	21-22 / 13-14 — 0° — 14° — 21°
C7 1NC+1NO	LS7120N	21-22 / 13-14 — 0° — 25° — 12°
C9 1NC+1NC	LS9120N	11-12 / 21-22 — 0° — 14°
C4 1NO+1NO	LS4120N	13-14 / 23-24 — 0° — 13°
C3 1NC+1NC	LS3120N	11-12 / 21-22 / 11-12 / 21-22 — 0° — 22° — 12°
C2 1NO+1NC 1NO+1NC	LS220N ✱	13-14 / 21-22 / 43-44 / 31-32 — 0° — 8° — 4°
C5 1NC+1NO	LS5121N ✱	21-22 / 13-14 / 21-22 / 13-14 — 0° — 23° — 12°
C6 1NC+1NO	LS6121N ✱	21-22 / 13-14 — 0° — 14° — 21°
C7 1NC+1NO	LS7121N	21-22 / 13-14 — 0° — 25° — 12°
C9 1NC+1NC	LS9121N	11-12 / 21-22 — 0° — 14°
C4 1NO+1NO	LS4121N	13-14 / 23-24 — 0° — 13°
C3 1NC+1NC	LS3121N	11-12 / 21-22 / 11-12 / 21-22 — 0° — 22° — 12°
C2 1NO+1NC 1NO+1NC	LS221N ✱	13-14 / 21-22 / 43-44 / 31-32 — 0° — 8° — 4°

D

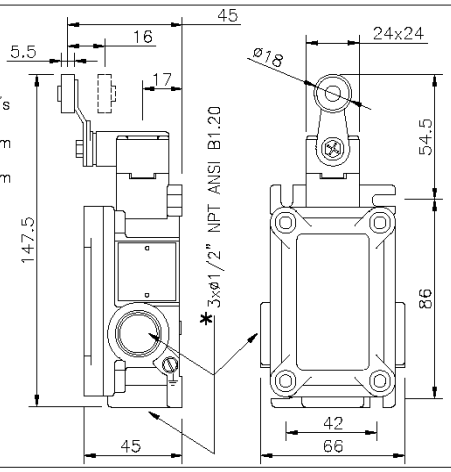
✱ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

A LEVA CON ROTELLA
With roller lever

VELOCITA' MASSIMA: *Max speed* 1.5 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.10 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* 0.32 Nm

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

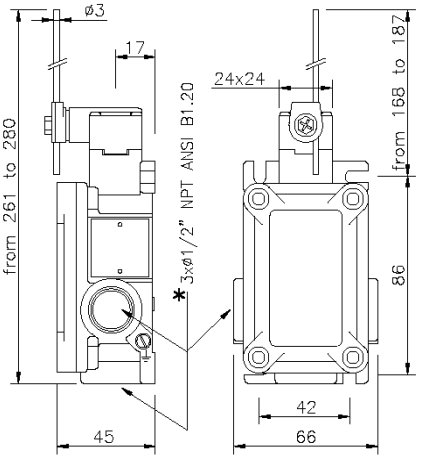


A LEVA CON ASTA RIGIDA TONDA INOX
With rigid round rod lever stainless steel

VELOCITA' MASSIMA: *Max speed* 1.5 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.10 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* 0.32 Nm

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

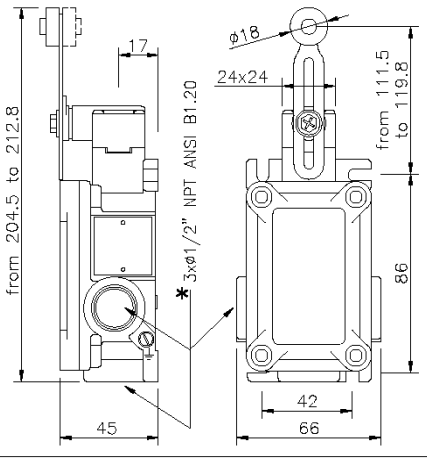


A LEVA LUNGA CON ROTELLA
With lenghtened roller lever

VELOCITA' MASSIMA: *Max speed* 1.5 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.10 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* 0.32 Nm

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*

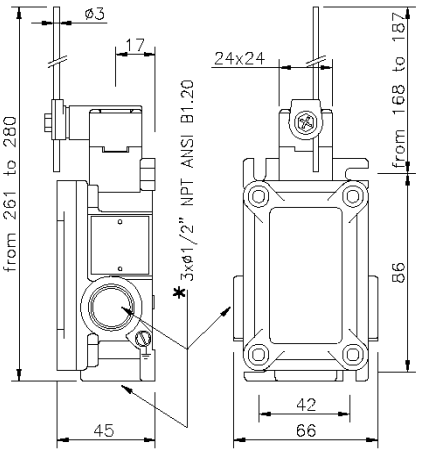


A LEVA CON ASTA RIGIDA IN NYLON
With rigid rod lever nylon

VELOCITA' MASSIMA: *Max speed* 1.5 m/s
COPPIA MIN. DI AZIONAMENTO: *Min. torque actuation:* 0.10 Nm
COPPIA MIN. PER APERTURA POSITIVA: *Min. torque positive opening operation:* 0.32 Nm

LEGENDA *Legenda*

- APERTURA POSITIVA *Positive opening*
- CORSA APERTURA POSITIVA *Positive opening travel*
- PREMENDO *Pushing*
- RILASCIANDO *Releasing*



UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*
C51 1NC+1NO	LS5130N ✱	0° 31° 47° 74° / 21-22 13-14 21-22 13-14 / 17°
C61 1NC+1NO	LS6130N ✱	0° 21° 37° 74° / 21-22 13-14 / 30°
C71 1NC+1NO	LS7130N	0° 35° 51° 74° / 21-22 13-14 / 18°
C91 1NC+1NC	LS9130N	0° 19° 37° 74° / 11-12 21-22
C41 1NO+1NO	LS4130N	0° 18° 74° / 13-14 23-24
C31 1NC+1NC	LS3130N	0° 30° 46° 74° / 11-12 21-22 11-12 21-22 / 17°
C2 1NO+1NC 1NO+1NC	LS230N ✱	0° 20° 75° / 13-14 21-22 43-44 31-32 / 13°
C51 1NC+1NO	LS5150N ✱	0° 31° 47° 74° / 21-22 13-14 21-22 13-14 / 17°
C61 1NC+1NO	LS6150N ✱	0° 21° 37° 74° / 21-22 13-14 / 30°
C71 1NC+1NO	LS7150N	0° 35° 51° 74° / 21-22 13-14 / 18°
C91 1NC+1NC	LS9150N	0° 19° 37° 74° / 11-12 21-22
C41 1NO+1NO	LS4150N	0° 18° 74° / 13-14 23-24
C31 1NC+1NC	LS3150N	0° 30° 46° 74° / 11-12 21-22 11-12 21-22 / 17°
C2 1NO+1NC 1NO+1NC	LS250N ✱	0° 20° 75° / 13-14 21-22 43-44 31-32 / 13°
C51 1NC+1NO	LS5155N ✱	0° 31° 47° 74° / 21-22 13-14 21-22 13-14 / 17°
C61 1NC+1NO	LS6155N ✱	0° 21° 37° 74° / 21-22 13-14 / 30°
C71 1NC+1NO	LS7155N	0° 35° 51° 74° / 21-22 13-14 / 18°
C91 1NC+1NC	LS9155N	0° 19° 37° 74° / 11-12 21-22
C41 1NO+1NO	LS4155N	0° 18° 74° / 13-14 23-24
C31 1NC+1NC	LS3155N	0° 30° 46° 74° / 11-12 21-22 11-12 21-22 / 17°
C2 1NO+1NC 1NO+1NC	LS255N ✱	0° 20° 75° / 13-14 21-22 43-44 31-32 / 13°
C51 1NC+1NO	LS5169N ✱	0° 31° 47° 74° / 21-22 13-14 21-22 13-14 / 17°
C61 1NC+1NO	LS6169N ✱	0° 21° 37° 74° / 21-22 13-14 / 30°
C71 1NC+1NO	LS7169N	0° 35° 51° 74° / 21-22 13-14 / 18°
C91 1NC+1NC	LS9169N	0° 19° 37° 74° / 11-12 21-22
C41 1NO+1NO	LS4169N	0° 18° 74° / 13-14 23-24
C31 1NC+1NC	LS3169N	0° 30° 46° 74° / 11-12 21-22 11-12 21-22 / 17°
C2 1NO+1NC 1NO+1NC	LS269N ✱	0° 20° 75° / 13-14 21-22 43-44 31-32 / 13°

✱IN ALTERNATIVA: *Alternative:* M20x1.5 ISO 262

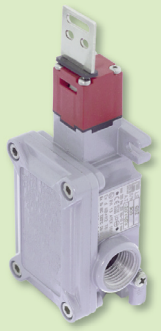
KEY-LOCK SAFETY SWITCHES with POSITIVE OPENING

series **LS**

Protection		Zone			
Gas	1-2	II2G	Ex db IIB+H_2 T6÷T5 Gb
Dusts	21-22	II2D	Ex tb IIIC T85°C÷T100°C Db

Degree of Protection	IP66

Amb. Temp.				
Standard	-20°C	+40°C
Extended	-50°C	+80°C



Entries Threading	NPT ANSI B1.20

Material	Aluminum light alloy

Painting	External epoxy RAL7000

Standards and Certificates

Directive 2014/34/EU (ATEX)
EN 60079-0 • EN 60079-1
EN 60079-31
CE BVI 13 ATEX 0084

IECEx
IEC 60079-0 • IEC 60079-1
IEC 60079-31
IECEx EPS 13.0034

- Ideal to control Gates, Protections, Carters and any moving mechanical parts.
- Stainless Steel operating key has to be fixed to the mobile part of the protection.
  When opening the protection the key is removed from the switch and a mechanism ensures the positive opening of the electric contact.
- Applicable to any type of protection (hinged, sliding or removable).
- For any other information pls. see pages D03 and D04.

Options

- Contact Units for currents and/or voltages beyond the standard.
- Cable entry with metric thread M20x1.5 (M).
- Orthogonal key.
- Jointed Key.

Information on available contacts: see pages D03 and D04.

Installation instructions

- The safety circuit shall be connected to the contact NC 21-22 when the key is inserted.
- The safety switches shall be assemblied to the body of the machine, while the key-lock is fixed to the protection.
- The head may be positioned on any of the four sides of the switch just by removing the four fixing screws: This allows up to 8 different actuation directions.
- The head of model LS ...93, adjustable over 360°, may be positioned in any actuation direction. **When the key is not inserted make sure that any dust and dirt do not obstruct its seat.**
- **Verify periodically the correct operation of the switch.**
- Fix the switch interposing a washer under fixing screws head.

Application on fences

When the switch is used to protect parts of machines physically accessible to people, to prevent the door or gate may accidentally close when the operator is inside, a padlock may be used at the appropriate hole on the key.
The arc of the padlock shall be of 6 mm diameter minimum.

Order coding

Key-lock safety switch with positive opening ⇒: LS ..92N

Type	Contact Unit	Actuator	Threading
LS	..	92	**N** = NPT (N) **M** = metric (M)

Key-lock safety switch with positive opening ⇒ with swivel head: LS ..93N

Type	Contact Unit	Actuator	Threading
LS	..	93	**N** = NPT (N) **M** = metric (M)

NOTES

To read the installation and maintenance instructions is reccommended.

The temperature class T6/T85°C considers an Ambient Temperature (A.T.) extended up to +60°C, whereas, class T5/T100°C considers an A.T. extended up to +80°C.

(*) For A.T. up to +40°C the max surface temperature is 65°C reducing the number of operations to 600/h.

(**) As safety switches only those with ⇒ symbol shall be used.

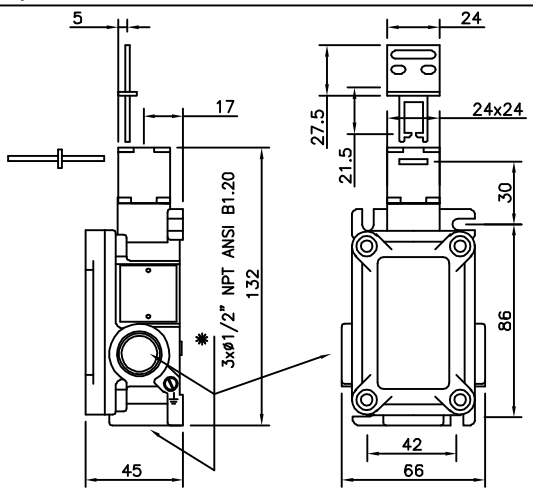
The safety circuit must always be connected to NC contacts (11-12 or 21-22). Exceed by 1.5 mm (25°) the gap between the contacts. Operate the switch with the indicated opening force.

D

✸ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*

A CHIAVE
With key



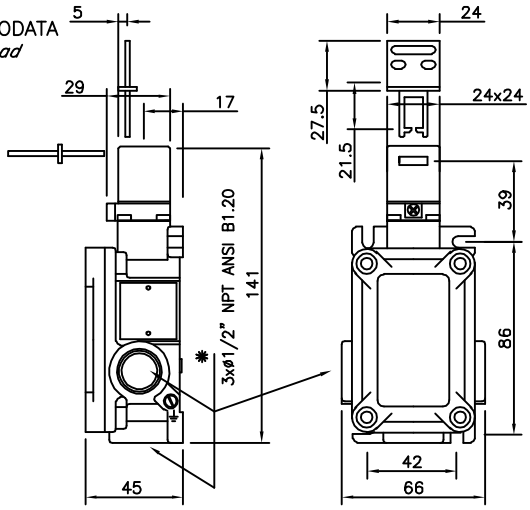
A RICHIESTA CON CHIAVE SNODATA
On request with jointed key

C6 1NO+1NC	LS 692N ✸	21–22 13–14	0 5 8 27
C9 2NC	LS 992N	11–12 21–22	0 7 27

LEGENDA
Legenda

APERTURA POSITIVA
Positive opening

A CHIAVE E TESTA SNODATA
With key and jointed head



A RICHIESTA CON CHIAVE SNODATA
On request with jointed key

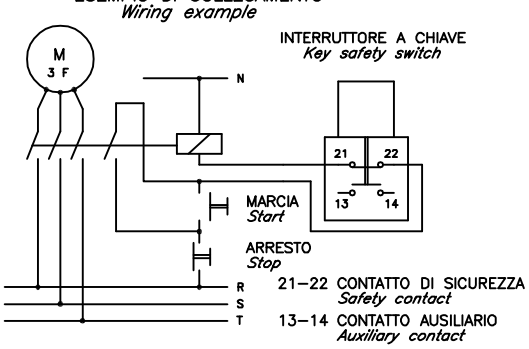
C6 1NO+1NC	LS 693N ✸	21–22 13–14	0 5 8 27
C9 2NC	LS 993N	11–12 21–22	0 7 27

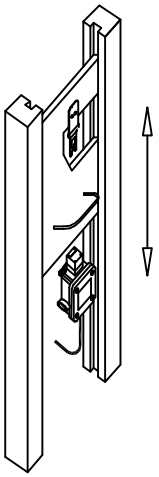
LEGENDA
Legenda

APERTURA POSITIVA
Positive opening

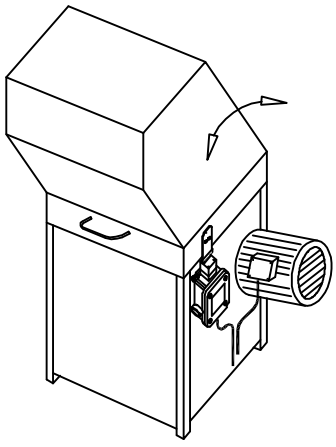
✳IN ALTERNATIVA:
Alternative: M20x1.5 ISO 262

ESEMPIO DI COLLEGAMENTO
Wiring example





ESEMPI DI APPLICAZIONE
Installation example



SLOTTED HOLE LEVER SAFETY SWITCHES with POSITIVE OPENING

series **LS**

Protection		Zone			
Gas	1-2	II2G	Ex db IIB+H_2 T6÷T5 Gb
Dusts	21-22	II2D	Ex tb IIIC T85°C÷T100°C Db

Degree of Protection	
IP66	

Amb. Temp.				
Standard	-20°C	+40°C
Extended	-50°C	+80°C

Entries Threading	
NPT ANSI B1.20	

Material	
Aluminum light alloy	

Painting	
External epoxy RAL7000	

Standards and Certificates	
	Directive 2014/34/EU (ATEX)
	EN 60079-0 • EN 60079-1 EN 60079-31
CE	BVI 13 ATEX 0084
IECEx	IEC 60079-0 • IEC 60079-1 IEC 60079-31
	IECEx EPS 13.0034

- Ideal to control Gates, Protections, Carters and any moving mechanical parts.
- Positively opens the contacts when exceeding a rotation of a few degrees, immediately releasing the stop signal.
- Applicable to any type of protection (hinged, removable or sliding).
- For any other characteristics see pages D03 and D04.

Options

- Contact Units for currents and/or voltages beyond the standard.
- Cable entry with metric thread M20x1.5 (M).

Information on available contacts: see pages D03 and D04.

Installation instructions

- The safety circuit must be connected to the NC contact (11-12 or 21-22).
- Fix the switch interposing a washer under fixing screws head.
- To connect the scrolling slotted hole lever to the hinged door (or equivalent) use a suitable swivel (i.e. a rivet) that will not derail from the scrolling slottedhole lever.
- The switch must be mounted having the lever rotation axis as close as possible to the hinge rotation axis.
- Make sure that at the maximum opening of the door (or equivalent) the swivel is not acting as a mechanical stop.
- **Verify periodically the correct operation of the switch.**

Order Coding

Slotted hole lever safety switchwith positive opening → 180° to the right: LS ..A77N

Type	Contact Unit	Actuator	Threading
LS	..	A77	**N** = NPT (N) **M** = metric (M)

Slotted hole lever safety switchwith positive opening → 90°: LS ..B77M

Type	Contact Unit	Actuator	Threading
LS	..	B77	**N** = NPT (N) **M** = metric (M)

Slotted hole lever safety switchwith positive opening → 180° to the left: LS ..C77N

Type	Contact Unit	Actuator	Threading
LS	..	C77	**N** = NPT (N) **M** = metric (M)

NOTES

To read the installation and maintenance instructions is reccommended.

The temperature class T6/T85°C considers an Ambient Temperature (A.T.) extended up to +60°C, whereas, class T5/T100°C considers an A.T. extended up to +80°C.

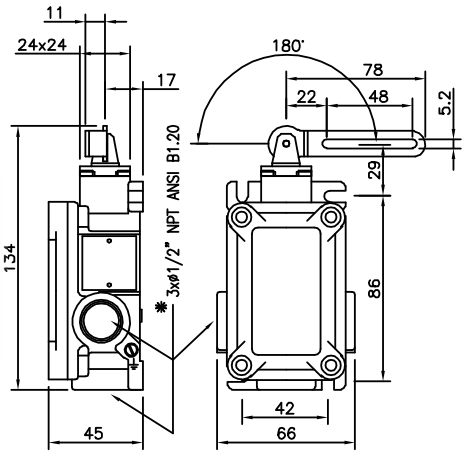
(*) For A.T. up to +40°C the max surface temperature is 65°C reducing the number of operations to 600/h.

(**) As safety switches only those with → symbol shall be used.

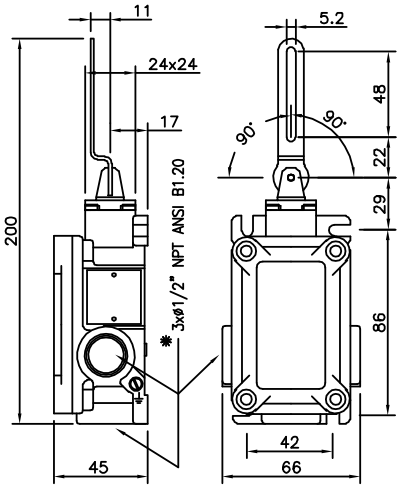
The safety circuit must always be connected to NC contacts (11-12 or 21-22). Exceed by 1.5 mm (25°) the gap between the contacts. Operate the switch with the indicated opening force.

✱ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

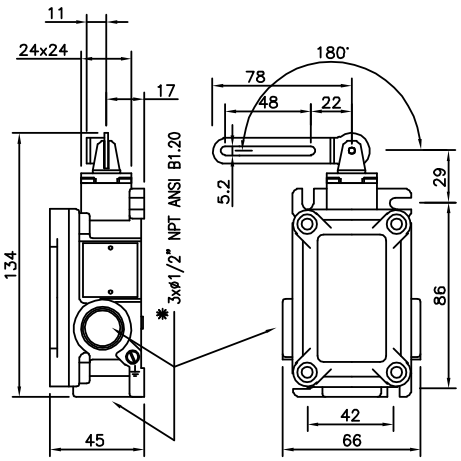
A LEVA ASOLATA DX
With slotted hole lever DX



A LEVA ASOLATA
With slotted hole lever

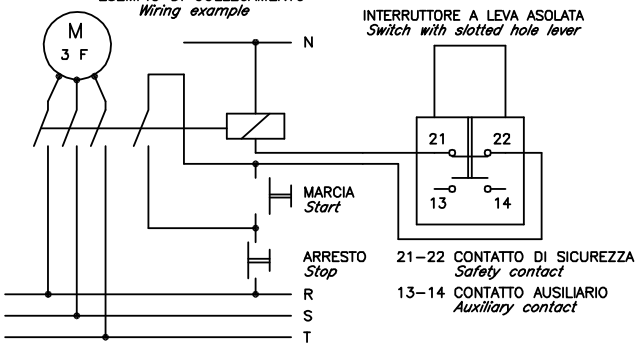


A LEVA ASOLATA SX
With slotted hole lever SX



UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*
C6 13 21 / 14 22 — 1NO+1NC	LS 6A77N ➔	21–22 / 13–14 — 4° — 0° 8° 180°	LS 6B77N ➔ ✱	21–22 / 13–14 — 90° 4° 4° 90° — 8° 0° 8°	LS 6C77N ➔	21–22 / 13–14 — 4° — 0° 8° 180°
C9 11 21 / 12 22 — 2NC	LS 9A77N ➔	11–12 / 21–22 — 0° 180° — 10°	LS 9B77N ➔	11–12 / 21–22 — 90° 90° — 10° 0° 10°	LS 9C77N ➔	11–12 / 21–22 — 0° 180° — 10°

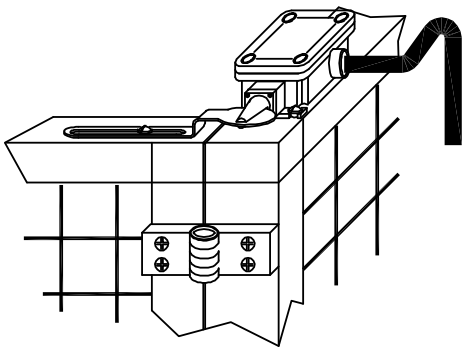
ESEMPIO DI COLLEGAMENTO
Wiring example



APERTURA POSITIVA
Positive opening ➔

✱IN ALTERNATIVA:
Alternative: M20x1.5 ISO 262

ESEMPIO DI APPLICAZIONE – *Installation examples*



SAFETY SWITCHES for HINGES with POSITIVE OPENING

series **LS**

Protection		Zone			
Gas	1-2	II2G	Ex db IIB+H_2 T6÷T5 Gb
Dusts	21-22	II2D	Ex tb IIIC T85°C÷T100°C Db

Degree of Protection	
IP66	

Amb. Temp.				
Standard	-20°C	+40°C
Extended	-50°C	+80°C

Entries Threading	
NPT ANSI B1.20	

Material	
Aluminum light alloy	

Painting	
External epoxy RAL7000	

Standards and Certificates	
Directive 2014/34/EU (ATEX)	
EN 60079-0 • EN 60079-1 EN 60079-31	
CE	BVI 13 ATEX 0084
IECEx	IEC 60079-0 • IEC 60079-1 IEC 60079-31
	IECEx EPS 13.0034

- Ideal to control Gates, Protections, Carters and any moving mechanical parts.
- Positively opens the contacts when exceeding a rotation of a few degrees, immediately releasing the stop signal.
- Applicable to any type of protection (hinged, removable or sliding).
- For any other information pls. see pages D03 and D04.

Options

- Contact Units for currents and/or voltages beyond the standard.
- Cable entry with metric thread M20x1.5 (M).

Information on available contacts: see pages D03 and D04.

Installation instructions

- The safety circuit shall be connected to the NC contact (11-12 or 21-22).
- Fix the switch interposing a washer under fixing screws head.
- Insert the pivot Ø 8 mm (outgoing from the hinge) in the shaft of the switch temporarily fixing it with the M4 screw (included).
- Verify the opening set position of the NC safety contact and adjust it as necessary. When the set position is adjusted the pin of the hinge has to be drilled in coincidence with the the most convenient hole between the two present on the shaft and then secured with the relevant plug (supplied).
- **Periodically verify the correct operations of the switch.**

NOTES

To read the installation and maintenance instructions is reccommended.

The temperature class T6/T85°C considers an Ambient Temperature (A.T.) extended up to +60°C, whereas, class T5/T100°C considers an A.T. extended up to +80°C.

(*) For A.T. up to +40°C the max surface temperature is 65°C reducing the number of operations to 600/h.

(**) As safety switches only those with ➔ symbol shall be used.

The safety circuit must always be connected to NC contacts (11-12 or 21-22). Exceed by 1.5 mm (25°) the gap between the contacts. Operate the switch with the indicated opening force.

Order Coding

Safety switch for hingeswith positive opening ➔: LS ..95N

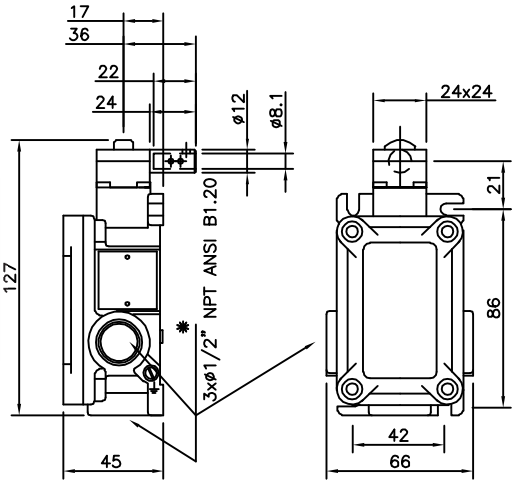
Type	Contact unit	Actuator	Threading
LS	..	95	**N** = NPT (N) **M** = metric (M)

D

D

✸ I PRODOTTI CONTRASSEGNATI SONO NORMALMENTE DISPONIBILI A MAGAZZINO
The marked products are normally available to store

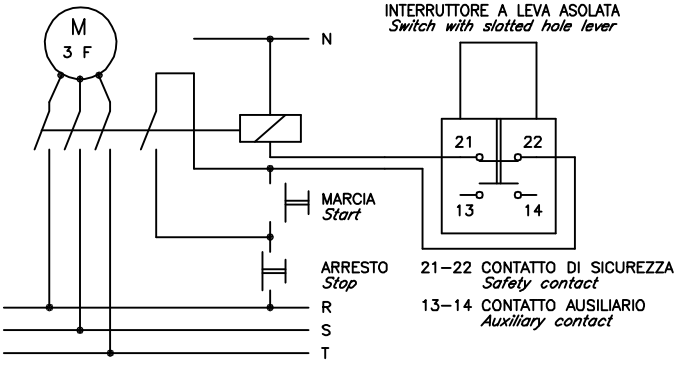
A PERNO PER CERNIERE
With hinge push button



UNITA' DI CONTATTO *Contact blocks*	N°CATALOGO *Catalogue n°*	DIAGRAMMI CORSE *Travel diagrams*
C6 1NO+1NC (13 21 / 14 22)	LS 695N ✸	21–22 / 13–14 : 4° ; 0° 8° 347°
C9 2NC (11 21 / 12 22)	LS 995N	11–12 / 21–22 : 0° 355° ; 5°

✸IN ALTERNATIVA:
Alternative: M20x1.5 ISO 262

ESEMPIO DI COLLEGAMENTO
Wiring example



APERTURA POSITIVA
Positive opening

ESEMPIO DI APPLICAZIONE – *Installation examples*