

Limitex

FLAMEPROOF LIMIT SWITCHES



Rotary type

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Position type

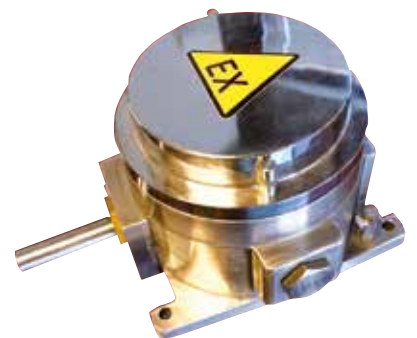
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**LIMITEX ROTARY
TYPE**



**LIMITEX POSITION
TYPE**



**FULL BODY
STAINLESS STEEL**

LIMITEX

Rotary limit switch

Flameproof rotary limit switch. Rugged and reliable, Limitex is used to control the movement of industrial machinery in potentially explosive areas.



MAIN FEATURES

- Accurate adjustment of cams by means of screws.
- Positive opening NC contacts for safety functions.
- Mechanical life of switches: 1 million operations.
- Protection degree: IP66.
- Ambient temperature range: -40°C to +60°C.
- External enclosure made of G20 cast iron, stainless steel transmission and gear driving shafts, selflubricating technopolymer gears and driving bushes.
- All materials and components used are wear resistant
- Full Body Stainless Steel Version Available

GENERAL SAFETY SPECIFICATIONS

Maximum power supply	300 Vac
Maximum current intensity	3 A
Maximum dissipated power	2 Watt
Rated frequency	50 / 60 Hz

GENERAL TECHNICAL SPECIFICATIONS

Maximum rotation speed	800 rev./min.
Cable entry	Nr. 1 M20x1,5 - Nr. 1 M25x1,5 - Nr. 1 ½ NPT (cable glands not supplied)

OPTIONS

- Revolution ratios from 1:15 to 1:1578, achieved by combining different secondary output stages.
- Snap action switches with 1NO+1NC change-over contacts.
- It can be equipped with a cam set with 2-3-4 switches.
- Available with flange for direct coupling to the transmission unit.

Conformity to Atex Standards

EN 60079-0 Explosive atmospheres - Equipment - General requirements
 EN 60079-1 Explosive atmospheres - Equipment protection by flameproof enclosures 'd'
 EN 60079-31 Explosive atmospheres - Equipment dust ignition protection by enclosure "t"

Conformity to IECEx Standards

IEC 60079-0 Explosive atmospheres - Equipment - General requirements
 IEC 60079-1 Explosive atmospheres - Equipment protection by flameproof enclosures 'd'
 IEC 60079-31 Explosive atmospheres - Equipment dust ignition protection by enclosure "t"

Certificate

INERIS 13ATEX0020X - IECEx INE 13.0051X

Certification for group I, IIA, IIB and IIC with the marks*

MINING: I M2 Ex d I Mb (ATEX) Ex d I Mb (IECEX)
 GAS Zone 1 and 2: II2G Ex d IIB T6 Gb or Ex d IIC T6 Gb (ATEX) Ex d IIB T6 or Ex d IIC T6 Gb (IECEX)
 DUST Zone 21 and 22: II2D Ex tb IIIC T85°C Db IP66 (ATEX) Ex tb IIC T85°C Db IP66 (IECEX)
 GAS & DUST: II2GD Ex d IIB or IIC T6 Gb Ex tb IIC T85°C Db IP66

Conformity to Community Directives

2006/95/CE Low Voltage Directive - 2006/42/CE Machinery Directive

Conformity to CE Standards

EN 60204-1 Safety of machinery - Electrical equipment of machines
 EN 60204-32 Safety of machinery - Electrical equipment of machines - Requirements for hoisting machines
 EN 60947-1 Low-voltage switchgear and controlgear
 EN 60947-5-1 Low-voltage switchgear and controlgear - Control circuit devices and switching elements - Electromechanical control circuit devices
 EN 60529 Degrees of protection provided by enclosures



* The user is responsible for choosing the proper limit switch protection type, group and maximum case temperature. The user is also responsible for the correct installation, connection to the electrical network and use and maintenance of the electrical devices.

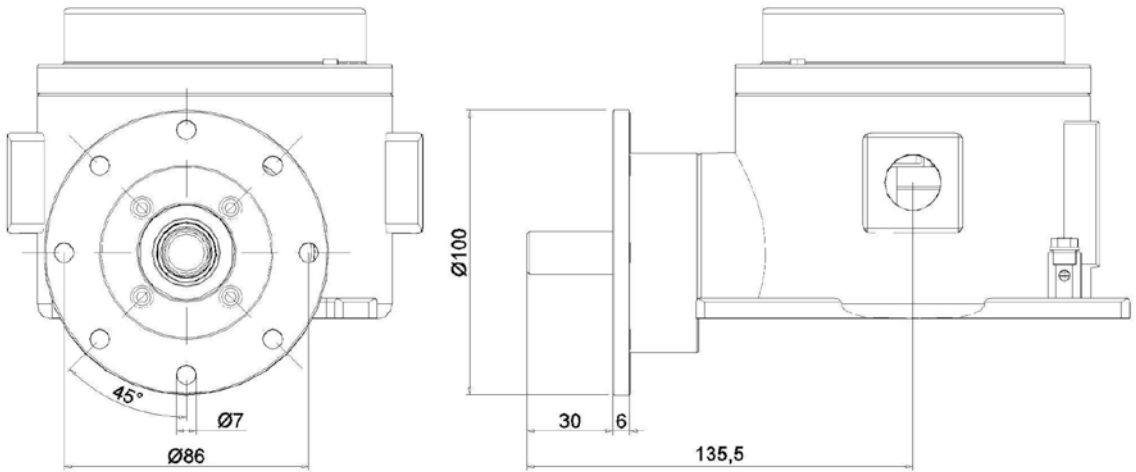
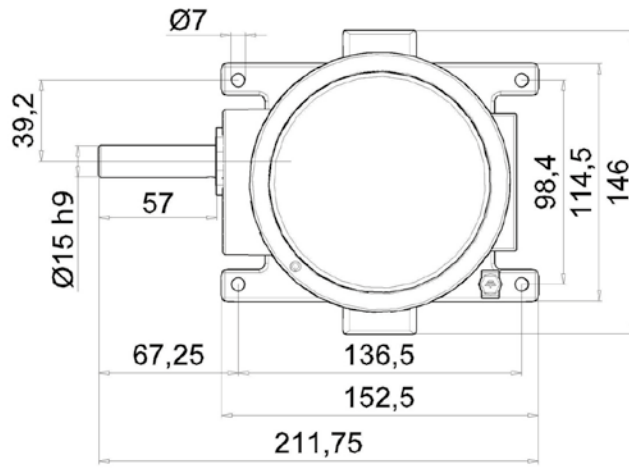
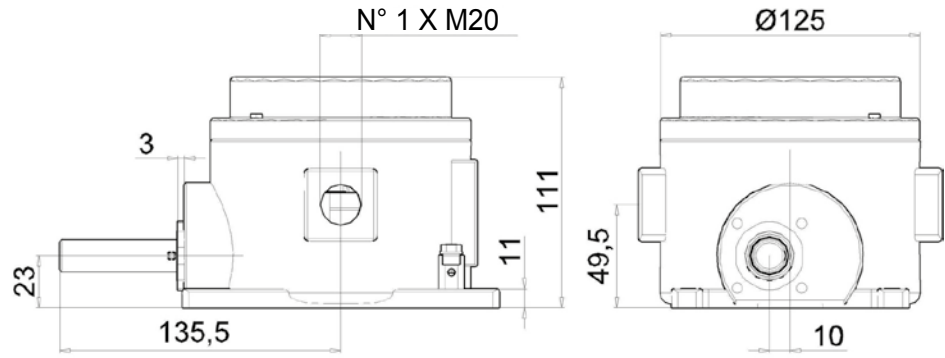
Utilisation category	AC 15	
Rated operational voltage	250 Vac	
Rated operational current	3 A	
Rated thermal current	10 A	
Rated insulation voltage	300 Vac	
Mechanical life	1x10 ⁶ operations	
Connections	6.3 mm Faston taps	
Wires	2x0.5 mm ² , 2x1.5 mm ² , 1x2,5 mm ²	
Tightening torque	0.5 Nm	
Microswitch type	Single break, snap actions	
Contacts	1 NO+1NC change-over contacts (All NC contacts are of the positive opening operation type)	
Scheme		
Weight with feet (Kg)	4,6	
Weight with flange and feet (Kg)	5,2	

STANDARD CAM SETS

Ref.	Drawing	No. and type of cams	No. and type of switches	Code
16		2 cams A	2 PRSL0003XX switches	PRFC0008PEC
		2 cams C	2 PRSL0003XX switches	PRFC0009PEC
17		3 cams A	3 PRSL0003XX switches	PRFC0004PEC
		3 cams C	3 PRSL0003XX switches	PRFC0006PEC
18		4 cams A	4 PRSL0003XX switches	PRFC0202PEC
		4 cams C	4 PRSL0003XX switches	PRFC0198PEC

CAM REFERENCE CHART

Cam			Switching angle	Code
A		1 point	20.5° ±0.5°	PRSL7140PI
B		10 points	14.0° ±0.5°	PRSL7142PI
C		60° sector	78.0° ±0.5°	PRSL7141PI
E		180° sector	199.5° ±0.5°	PRSL7144PI
H		335° sector	344.0° ±0.5°	PRSL7143PI



LIMITEX

Cross position limit switch

Flameproof position limit switch.
Rugged and reliable, Limitex is designed to control the movement of overhead travelling cranes, hoists and complex machine tools operating in potentially explosive areas.



MAIN FEATURES

- Positive opening NC contacts for safety functions.
- Mechanical life of switches: 1 million operations.
- Operation frequency: 3600 operations/hour max.
- Protection degree: IP66.
- Ambient temperature range: -40°C to +60°C.
- It features rugged external enclosure made of G20 cast iron and cross rod support made of zinc alloy. Internal components are made of materials which guarantee long mechanical life and continuous performance
- Full Body Stainless Steel Version Available

GENERAL SAFETY SPECIFICATIONS

Maximum power supply	250 Vac
Maximum current intensity	3 A
Maximum dissipated power	2 Watt
Rated frequency	50 / 60 Hz

GENERAL TECHNICAL SPECIFICATIONS

Operation frequency	3600 operations/hour max
Cable entry	Nr. 1 M20x1,5 - Nr. 1 M25x1,5 - Nr. 1 ½ NPT (cable glands not supplied)

OPTIONS

- 2 or 4 snap action switches with 1NO+1NC change-over contacts.
- Cross rods move to 3 or 4 maintained positions, with movement every 90°.
- Modular adapter with fixing points.

Conformity to Atex Standards

EN 60079-0 - Explosive atmospheres - Equipment - General requirements
 EN 60079-1 - Explosive atmospheres - Equipment protection by flameproof enclosures 'd'
 EN 60079-31 - Explosive atmospheres - Equipment dust ignition protection by enclosure "t"

Conformity to IECEx Standards

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Certificate

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 EN 60947-5-1 Low-voltage switchgear and controlgear - Control circuit devices and switching elements - Electromechanical control circuit devices
 EN 60529 Degrees of protection provided by enclosures



Utilisation category	AC 15
Rated operational current	3 A
Rated operational voltage	250 Vac
Rated thermal current	10 A
Rated insulation voltage	300 Vac
Mechanical life	1x10 ⁶ operations
Connections	Screw-type terminals
Wires	1x2.5 mm ² , 2x1.5 mm ² (UL - (c)UL: use 60°C or 75°C copper (CU) conductor and wire 16-18 AWG)
Tightening torque	0.8 Nm
Microswitch type	Double break, snap actions
Contacts	1 NO+1NC (All NC contacts are of the positive opening operation type)
Scheme	
Weight (Kg)	4,5

MAXIMUM ACTUATING DIMENSION

T-type rod - Cross rod with 3 maintained positions

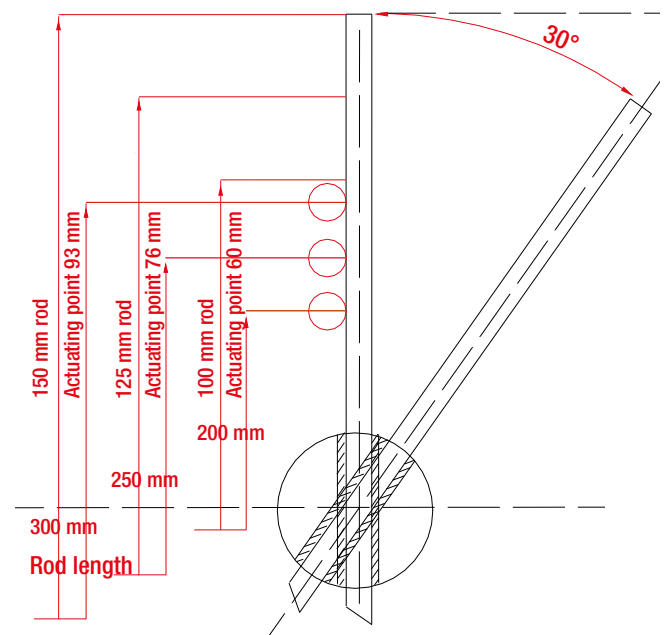
- Pre-travel angle for rotation contact operation: 70°-49°
- Maximum rotation angle for each maintained position: 90°
- Average angle for the mechanical tripping: 48°

Rod - Rod and Roller

- Pre-travel angle for rotation contact operation: 24°
- Maximum rotation angle: 65°

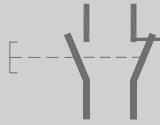
Rod - Rod and Roller

- Pre-travel angle for rotation contact operation: 49°
- Maximum rotation angle for each maintained position: 90°
- Average angle for the mechanical tripping: 48°
- Maintained positions each: 90°

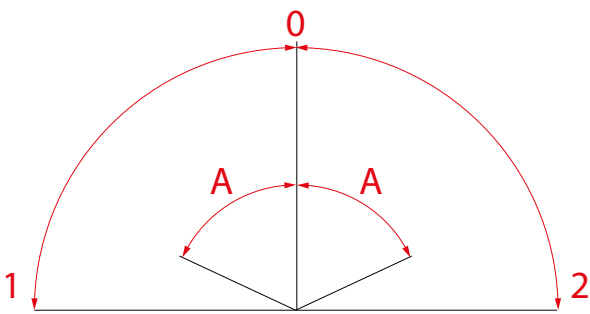


In order to ensure proper operations, the dimensions shall not be increased; anyhow, they can be decreased, taking into account that the closer the impact point is to the center of the head, the higher the impact and the mechanical wear of rod and shaft are.

IMPORTANT: the maximum impact speed is 1.35 m/s, referring to the ideal impact points showed in the drawing.

Rated operational current	16 A at 250 Vac
Rated operational voltage	500 Vac
Rated thermal current	10 A
Rated insulation voltage	300 Vac
Mechanical life	10x10 ⁶ operations
Connections	Screw-type terminals
Wires	1x2.5 mm ² , 2x1.5 mm ²
Microswitch type	Snap actions
Contacts	4 Microswitches 1NO+1NC
Scheme	

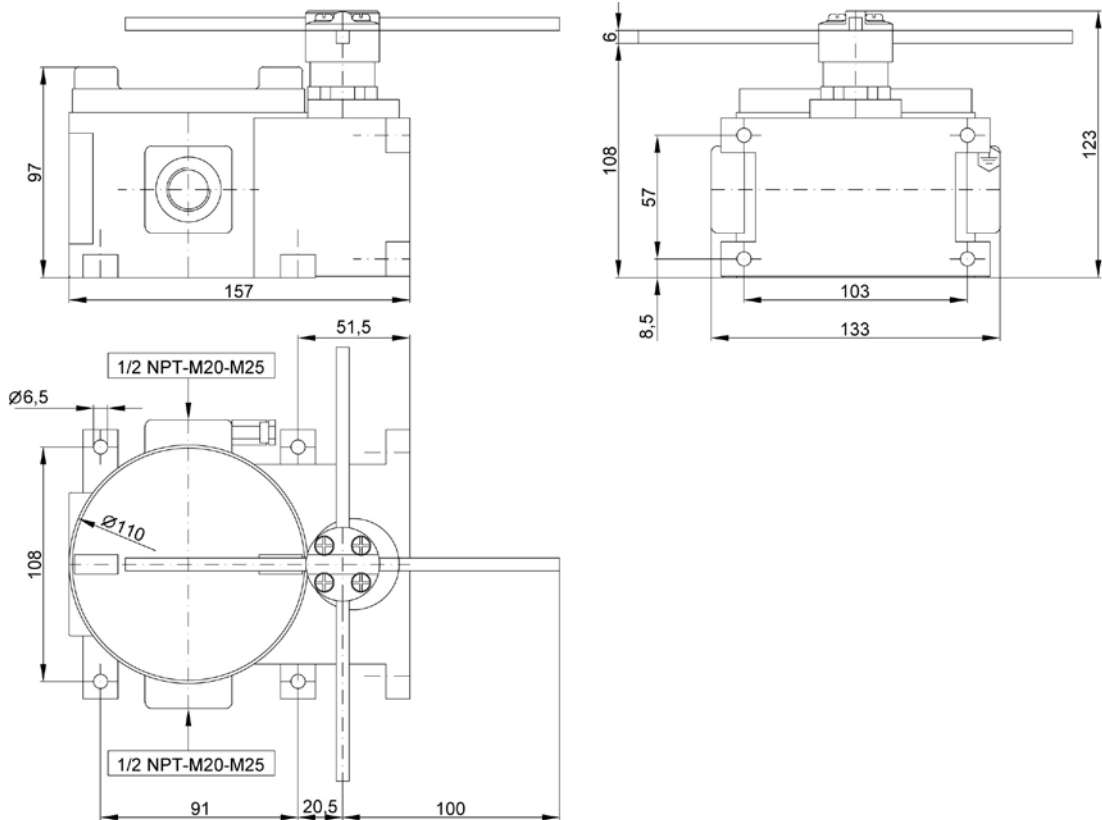
OPERATION ANGLES

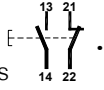


- 0** - Reset position
- A** - Microswitch working angle: 65°
- 1** - Maximum left handed operation: 90°
- 2** - Maximum right handed operation: 90°

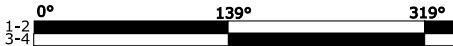
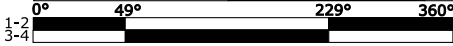
The end of round of the “cross bar” limit switches have no limit stop (i.e. they can rotate around 360°).

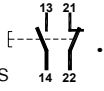
OVERALL DIMENSIONS (mm)

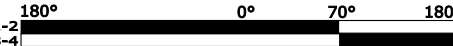
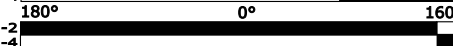
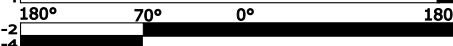
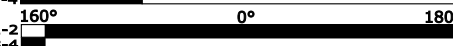
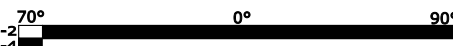
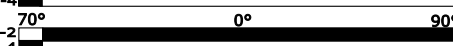
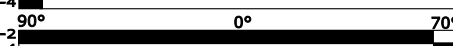
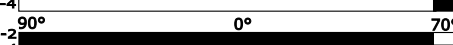


Limit switches are equipped with 1NO+1NC snap action switches 

CROSS POSITION LIMIT SWITCHES

Actuating travel	Positions	Rod	Contacts
 1-2 0° 139° 319° 3-4	4 maintained	Cross	2
 1-2 0° 49° 229° 360° 3-4			

Limit switches are equipped with 4 Microswitches 1NO+1NC snap action switches 

Actuating travel	Rod length	Contacts
 1-2 180° 0° 70° 180° 3-4	200 mm	4
 1-2 180° 0° 160° 3-4		
 1-2 180° 70° 0° 180° 3-4	200 mm	4
 1-2 160° 0° 180° 3-4		
 1-2 70° 0° 90° 3-4	200 mm	4
 1-2 70° 0° 90° 3-4		
 1-2 90° 0° 70° 3-4		
 1-2 90° 0° 70° 3-4		



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