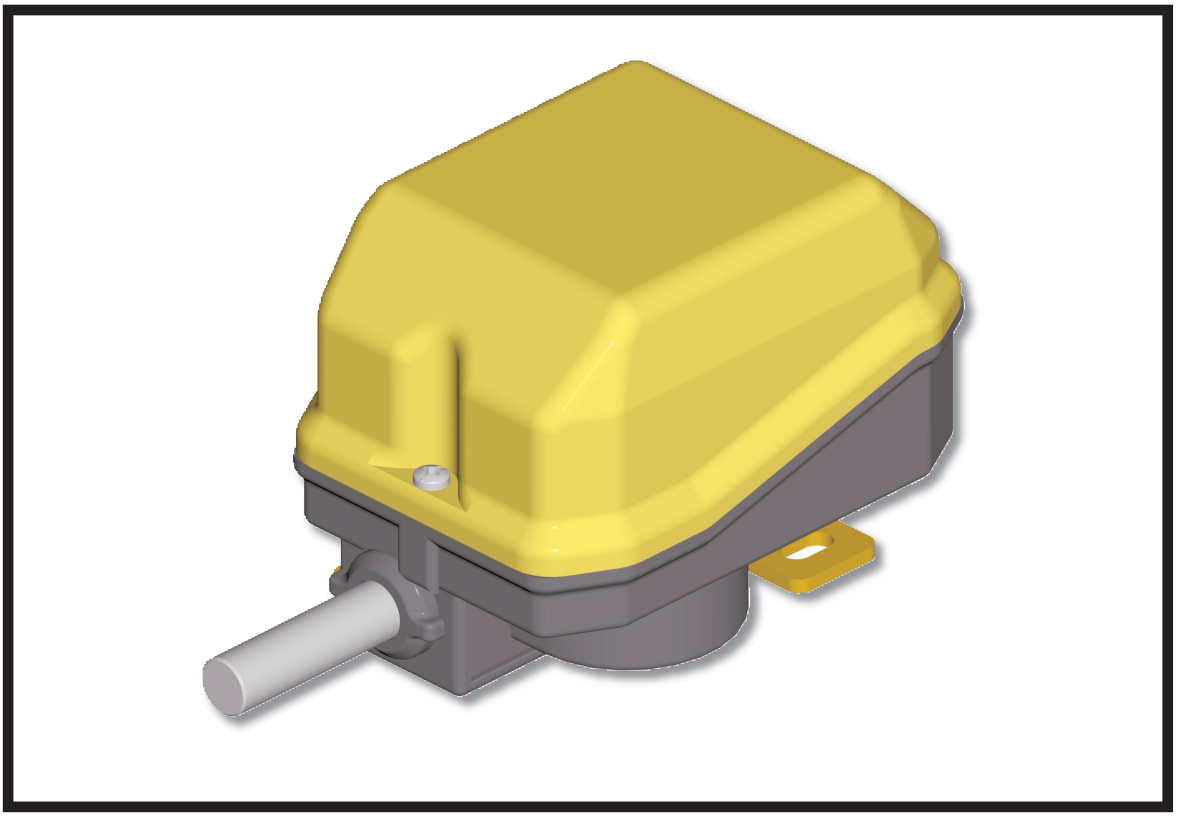
PF2C Rotary Limit Switch



The rotary limit switch is used to control the movement of industrial machinery. It operates as an auxiliary controller of electrical motors through a power interface, such as a contactor or PLC. Suitable for heavy duty, its shaft is connected to the motor and, after a set number of revolutions, the cams operate the switches, thus starting the predetermined movement. A worm gear and a helical toothed gear combined with one or more pairs of straight toothed gears are used for the transmission of the movement from the input shaft to the output shaft.

Revolution ratios ranging from 1:1 to 1:295 result from the use of different combinations of gear wheels between the input shaft and the output shaft, which is connected to the cams operating the switches.
Transmission and gear driving shafts are made of stainless steel to prevent oxidation and wear. The gear wheels and the driving bushes are made of self-lubricating thermoplastic material, suitably chosen to reduce the wear to a minimum and to maintain the accuracy of the couplings over time. Sintered bronze bushes are moulded into the base of the limit switch to optimise the shaft rotation and to prevent rubbing with plastic material.

Each cam can be set with great accuracy thanks to the cam adjusting screws. The auxiliary switches are of a positive opening type, thus suitable for safety functions. It is available with direct control switches for operating directly on the motor.
The cam-switch sets can be substituted for potentiometers suitable for the connection to electronic equipment.

Materials and components are wear resistant and protect the equipment against water and dust. The limit switch is available with a flange for direct coupling to the motor and it can be customised with labels and colours according to the customer's requirements.

PF2C Rotary Limit Switch

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PF2C Rotary Limit Switch

Technical Specifications

Conformity to Community Directives	73/23/CEE 93/68/CEE
Conformity to Standards	EN 60204-1 EN 60947-1 EN60947-5-1 EN 60529 EN 50013 IEC 536
Ambient temperature	Storage -40°C/+70°C Operational -25°C/+70°C
Protection degree	IP 65
Insulation category	Class II
Cable entry	Cable clamp M20 with reduced clampling area
Homologations	CE (UL - (c)UL limit switches available on request)

Technical Specifications of the Switches

Utilisation category	AC 15
Rated operational current	3 A
Rated operational voltage	250 V
Rated thermal current	10 A
Rated insulation voltage	300 V~
Mechanical life	$1x10^6$ operations
Terminal referencing	According to EN 50013
Connections	Screw-type terminals with self-lifting pads
Homologations	CE - UL - (c)UL

Standard Limit Switch Codes

Revolution ratio	Type of contact	2 switches
1:10	Snap	PF0902 0010 0001
	Slow	PF0902 0010 0004
1:15	Snap	PF0902 0015 0001
	Slow	PF0902 0015 0003
1:20	Snap	PF0902 0020 0002
	Slow	PF0902 0020 0008
1:25	Snap	PF0902 0025 0001
	Slow	PF0902 0025 0003
1:50	Snap	PF0902 0050 0001
	Slow	PF0902 0050 0006
1:75	Snap	PF0902 0075 0001
	Slow	PF0902 0075 0003
1:100	Snap	PF0902 0100 0001
	Slow	PF0902 0100 0002
1:150	Snap	PF0902 0150 0001
	Slow	PF0902 0150 0002
1:200	Snap	PF0902 0200 0001
	Slow	PF0902 0200 0002
1:250	Snap	PF0902 0250 0002
	Slow	PF0902 0250 0003

Standard limit switches are equipped with 2 snap or slow action switches and with pointed cams PRSL7140PI. Other assemblies and revolution ratios are available on request. Maximum revolution ratio 1:295.

PF2C Rotary Limit Switch

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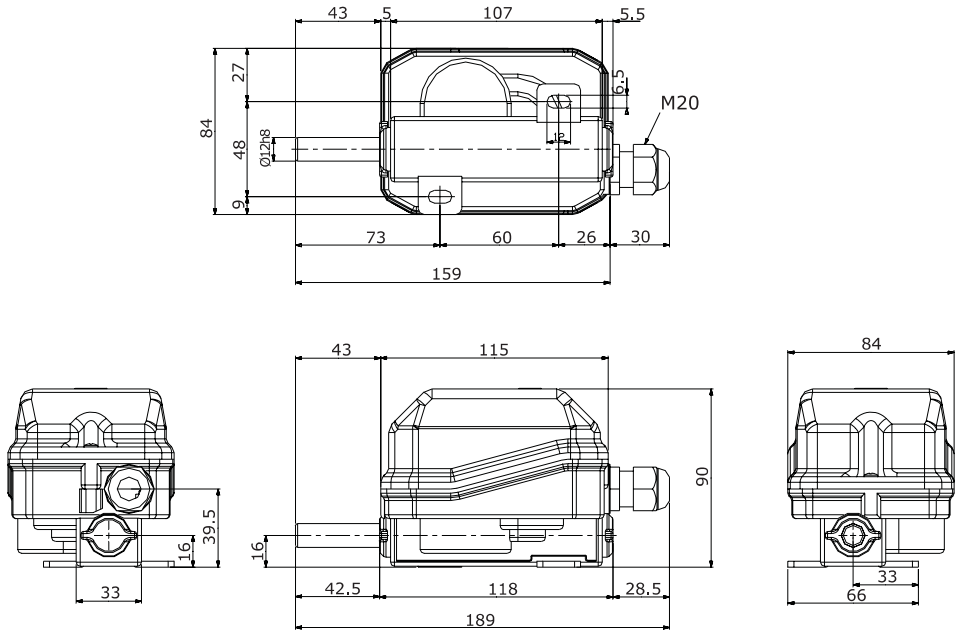
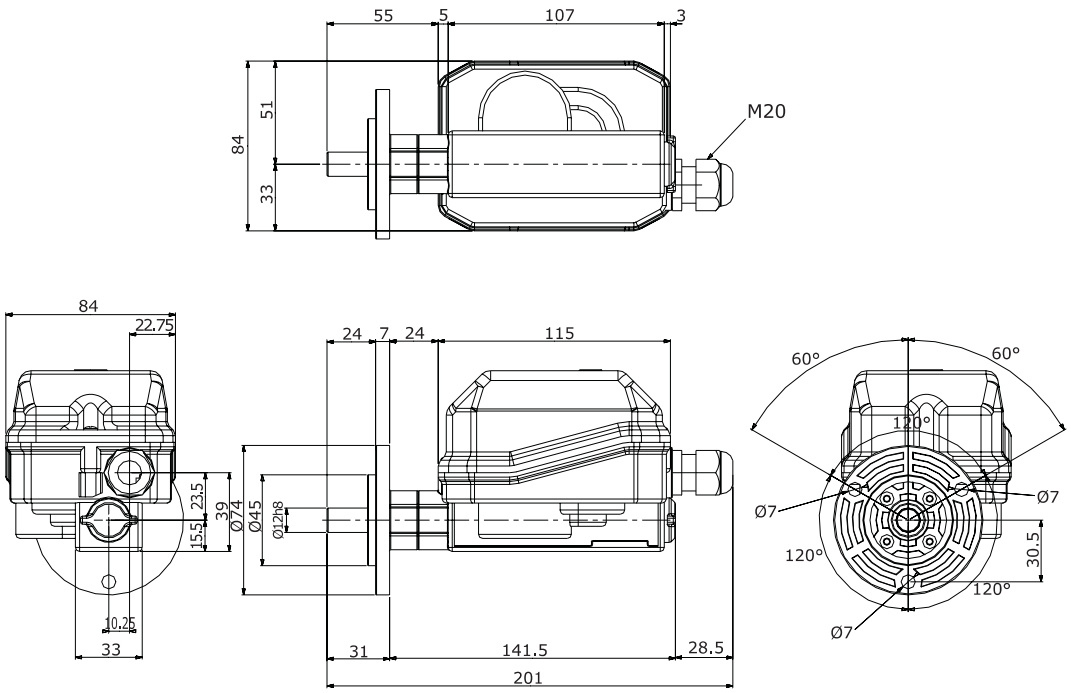
Overall Dimensions

Standard Limit Switch

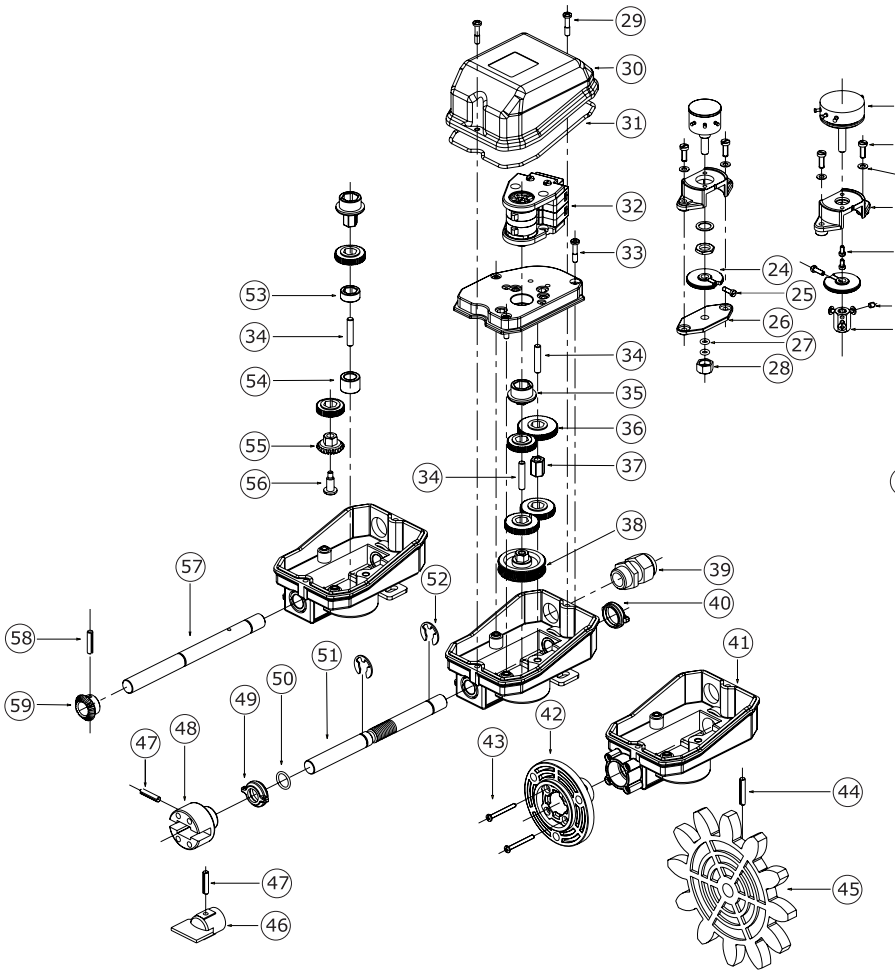


Limit Switch with Flange



PF2C Rotary Limit Switch

Detailed Drawing



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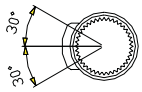
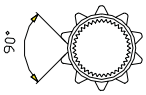
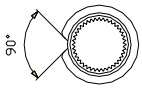
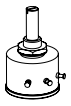
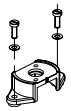
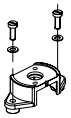
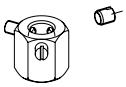
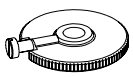
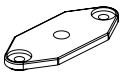
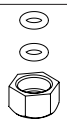
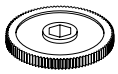
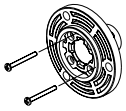
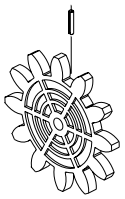
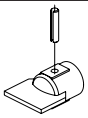
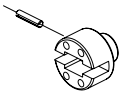
PF2C Rotary Limit Switch

Spare Parts

Reference	Drawing	Code	Description
07		PRSL0036XX PRSL0037XX	Snap action switch Slow action switch
08		PRSL7140PI	Pointed cam
08		PRSL7141PI	Sector cam
08		PRSL7142PI	10 point cam
08		PRSL7143PI	Circular cam
08		PRSL7144PI	180° cam
17		PRVV9020PE PRVV9025PE PRVV9035PE	Potentiometer Megatron 4.7 kW with continuous rotation Potentiometer Megatron 10 kW with continuous rotation Potentiometer Megatron 2.2 kW with continuous rotation
17		PRVV9030PE PRVV9031PE	Potentiometer MCB 10 kΩ Potentiometer MCB 10 kΩ with continuous rotation
20 +18+19		PRSL0928PI	Small support for potentiometer with O-ring
20 +18+19		PRSL0930PI	Medium support for potentiometer
23 +22		PRSL0933PI	Fixed coupling for potentiometer - 13mm
24 +25		PRSL0909PI	Adjusting gear
26		PRSL9409PI	Support plate for potentiometer with O-ring
28 +27		PRSL0927PI	Bush for potentiometer

PF2C Rotary Limit Switch

Spare Parts

Reference	Drawing	Code	Description
36		PRSL6600PI PRSL6601PI PRSL6602PI PRSL6603PI PRSL6604PI PRSL6605PI PRSL6606PI PRSL6607PI PRSL6608PI PRSL6609PI PRSL6610PI PRSL6611PI PRSL6612PI PRSL6613PI PRSL6614PI PRSL6615PI PRSL6616PI PRSL6617PI PRSL6618PI PRSL6619PI PRSL6620PI	Lateral gear wheel Z 36 Lateral gear wheel Z 38 Lateral gear wheel Z 40 Lateral gear wheel Z 42 Lateral gear wheel Z 44 Lateral gear wheel Z 46 Lateral gear wheel Z 48 Lateral gear wheel Z 50 Lateral gear wheel Z 52 Lateral gear wheel Z 54 Lateral gear wheel Z 55 Lateral gear wheel Z 56 Lateral gear wheel Z 58 Lateral gear wheel Z 60 Lateral gear wheel Z 62 Lateral gear wheel Z 64 Lateral gear wheel Z 66 Lateral gear wheel Z 68 Lateral gear wheel Z 70 Lateral gear wheel Z 72 Lateral gear wheel Z 74
38		PRSL6702PI	Central gear wheel Z 70
42 +43		PRSL0947PI	Flange
45 +44		PRSL0911PI PRSL0912PI PRSL0913PI PRSL0914PI PRSL0915PI PRSL0916PI PRSL0917PI PRSL0918PI PRSL0944PI	Pinion gear M10 Z12 Pinion gear M12 Z10 Pinion gear M14 Z10 Pinion gear M16 Z10 Pinion gear M20 Z8 Pinion gear M5 Z12 Pinion gear M6 Z11 Pinion gear M8 Z12 Pinion gear M12 Z12
46 +47		PRSL0919PI	Male coupling
48 +47		PRSL0920PI	Female coupling
51		PRTO0065PE PRTO0054PE	Single-thread worm shaft Double-thread worm shaft
51		PRTO0076PE	Flexible shaft

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PF2C Rotary Limit Switch

Request Form for Non Standard Limit Switches

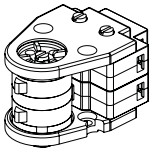
Cams

1		PRSL7140PI
2		PRSL7141PI
3		PRSL7142PI
4		PRSL7143PI
5		PRSL7144PI

Switches

1	PRSL0036XX	Snap action
2	PRSL0037XX	Slow action

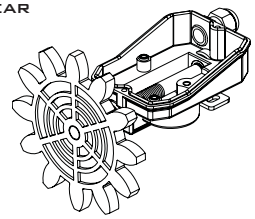
Cams / Switches



Pinion gears

1	PRSL0911PI	M10 Z12
2	PRSL0912PI	M12 Z10
3	PRSL0913PI	M14 Z10
4	PRSL0914PI	M16 Z10
5	PRSL0915PI	M20 Z8
6	PRSL0916PI	M5 Z12
7	PRSL0917PI	M6 Z11
8	PRSL0918PI	M8 Z12
9	PRSL0944PI	M12 Z12

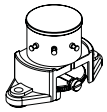
Pinion gear



Potentiometers

1	PRVV9020PE Megatron 4.7 kΩ continuous rotation
2	PRVV9025PE Megatron 10 kΩ continuous rotation
3	PRVV9035PE Megatron 2.2 kΩ continuous rotation
4	PRVV9030PE MCB 10 kΩ
5	PRVV9031PE MCB 10 kΩ continuous rotation

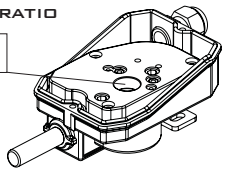
Potentiometer



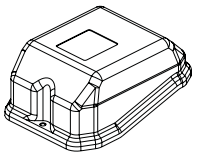
O-ring coupling

Fixed coupling

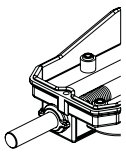
Revolution ratio



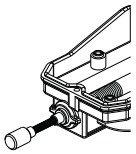
Cover



Standard shaft



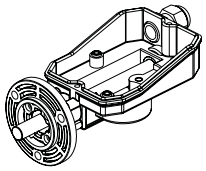
Flexible shaft



Male coupling

Female coupling

Flange



Instructions

- Write the numbers corresponding to the **cams**, the **switches**, the **pinion gear** and the **potentiometers** required.
- When a potentiometer is required, mark the box corresponding to the type of **coupling** needed.
- Write the **revolution ratio** required.
- Mark the boxes corresponding to the components required.

Remarks

PF2C Rotary Limit Switch

PF2C Rotary Limit Switch

Use and Maintenance Instructions

The PF2C rotary limit switch is an electromechanical device for low voltage control circuits (EN 60947-1, EN 60947-5-1) to be used as electrical equipment on machines (EN 60204-1) in compliance with the fundamental requirements of the Low Voltage Directive 73/23/CEE and of the Machine Directive 89/392/CEE.

The limit switch is designed for industrial use and also for use under particularly severe climatic conditions (operational temperature from –25°C to +70°C, suitable for use in tropical environment). The equipment is not suitable for use in environments with potentially explosive atmosphere, corrosive agents or a high percentage of sodium chloride (saline fog). Oils, acids or solvents may damage the equipment. Use the fixing holes on the base or the flange (43) to mount the limit switch. The use of special couplings (47, 49), flexible shafts or special driving systems (not supplied) are recommended for eliminating any misalignment between the limit switch shaft (52, 58) and the reduction gear shaft to which it is connected. After loosening the central screw (03) use the screws (09, 11) to adjust the operating point of the cams (08); once the cams are adjusted, tighten the central screw (03).

The switches (07) are designed for auxiliary control of contactors or electromagnetic loads (utilisation category AC-15 according to EN 60947-5-1). The switches (07) have positive opening operation contacts (EN 60947-5-1). Do not connect more than one phase to each switch (07). Do not oil or grease the control elements (08) or the switches (07). For easy wiring, the set of cams/switches (32) may be removed by loosening the screws (13) on the lower fixing plate; do not loosen the screws on the upper part of the set of cams/switches (01) in order not to take apart the switches; after wiring is completed, the set of cams/switches (32) must be properly fixed and screwed, paying attention to the coupling of the hexagonal plastic bushes (12, 36).

The installation of the limit switch shall be carried out by an expert and trained personnel. Wiring shall be properly done according to the current instructions.

Prior to the installation and the maintenance of the limit switch, the main power of the machinery shall be turned off.

Steps for the proper installation of the limit switch

- loosen the fixing screw (29) and remove the cover (30)
- connect the limit switch shaft (52, 58) to the reduction gear shaft; to avoid any misalignment between the two shafts the use of couplings (47, 49), flexible shafts or special driving systems is recommended
- fix the limit switch firmly in place to prevent abnormal vibrations of the equipment during operation; use only the fixing holes on the base or the flange (43) to fix the equipment
- insert the cable into the limit switch through the cable clamp (40)
- strip the cable to a length suitable for wiring the switches (07)
- tape the stripped part of the cable
- clamp the wire into the cable clamp (40)
- connect all the switches (07) according to the contact scheme printed on the switches (tighten the wires into the terminals with a torque equal to 0.8 Nm; insertability of wires into the switch terminals equal to 2x1.5mm^2 – 1x2.5 mm^2)
- adjust the operating point of the cams (08); for proper adjustment, loosen the central screw (03) of the cam set, adjust the operating point of each single cam (08) by turning its screw (09, 11) (the numbers on the screws refer to the cams counting from bottom to top), then tighten the central screw (03)
- close the limit switch checking the proper positioning of the rubber (31) in the cover (30)

Periodic maintenance steps

- check the proper tightening of the screws (29) and cover (30)
- check the proper tightening of the switch (07) terminal screws
- check the proper tightening of the central screw (03) holding the cams (08)
- check the wiring conditions (in particular where wires clamp into the switch)
- check the proper positioning of the front (50) and rear (41) bush covers
- check the conditions of the rubber (31) fit into the cover (30) and check the tightening of the cable clamp (40) around the cable
- check that the limit switch enclosure (30, 42) is not broken
- check the alignment between the limit switch shaft (52, 58) and the reduction gear shaft
- check that the limit switch is properly fixed

In case any component of the limit switch is modified, the validity of the markings and the guarantee on the equipment are annulled. Should any component need replacement, use original spare parts only.

TER declines all responsibility for damages caused by the improper use or installation of the equipment.

PF2C Rotary Limit Switch