RLS - 51
Geared CAM Limit Switches

Power Jacks is the largest and most experienced manufacturer of actuators and mechanical jacks in the UK. Our products are used in a wide spectrum of industries for lifting, positioning and materials handling applications. All of which require a level of motion control. Power Jacks RLS-51 series geared CAM Limit Switches extends the current range of rotary limit switches and our ability to solve the most demanding motion control applications with the right solution. RLS-51 limit switch features include:-

- Usable revolutions from 4.1 to 16,000
- 2 to 8 position limit switch units
- Enclosure IP66 as standard
- Mounting options for B5, B14 and foot mounted
- Available in three voltages 250V AC, 24V DC & 80V DC
- Modular design to allow a variery of options

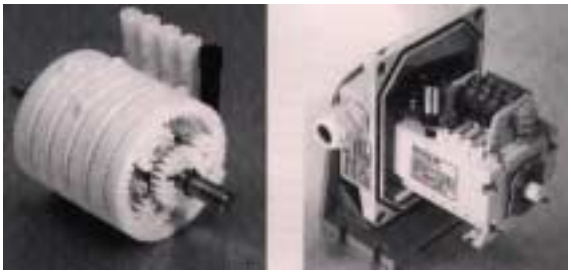
Illustrated examples

RLS-51 with 8 Limit Switches
& foot mounting

with potentiometer

with pulse generator
& B5 flange mount

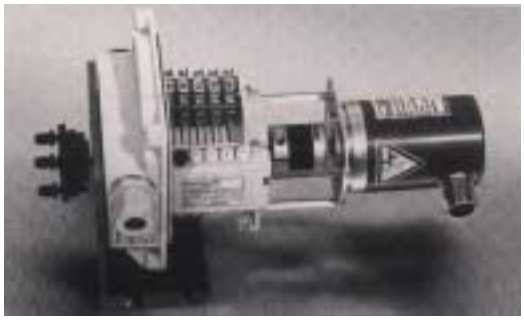
Analogue feedback systems, e.g. potentiometers, can easily be fitted. The same applies to the pulse generator used as motion indicator for actuator systems.



gear part

with motorised adjustment

The switching points for all contacts can be changed commonly by block adjustment -
An electric adjusting motor can be retrofitted



with absolute encoder

For safety disengagements positive opening switching contacts are used; for position control combined with integral absolute or incremental encoders to offer highest safety and finest resolution.

RLS-51 Performance

Gear size	Usable revs. selected	Usable revs. theoretical with 15° cam discs	Gear ratio (i)	Input/ output stage	No of in-term. stages (i)	1 rev. of the drive shaft - corresp. to an ang. motion of cam disc = °	Change - over contact reset rev. at driving shaft	max drive speed (RPM)	min drive shaft speed (only for change - over contact)
1	4.1	4.16	4.285	-	1x4.285	84	0.00714	1000	0,67
	6.5	6.88	7.083	1.653	1x4.285	50.8	0.0118	1200	1.1
	11	11.23	11.56	2.698	1x4.285	31.14	0.0193	1500	1.8
2	17.5	17.84	18.361	-	2x4.285	19.6	0.0306	1800	2.9
	29.0	29.5	30.35	1.653	2x4.285	11.86	0.0505	1800	4.7
	48	48.13	49.538	2.698	2x4.285	7.27	0.0825	1800	7.7
3	75	76.45	78.678	-	3x4.285	4.57	0.131	1800	12.2
	125	126.39	130.054	1.653	3x4.285	2.77	0,2166	1800	20.2
	205	206.26	212.272	2.698	3x4.285	1.69	0.3536	1800	33
4	323	327.6	337.135	-	4x4.285	1.06	0.5616	1800	52
	540	541.5	557.284	1.653	4x4.285	0.65	0.9284	1800	87
	880	883.8	909.59	2.698	4x4.285	0.4	1.515	1800	141
5	1384	1403.7	1444.62	-	5x4.285	0.25	2.406	1800	224
	2288	2320.2	2387.96	1.653	5x4.285	0.15	3.978	1800	371
	3735	3787.1	3897.58	2.698	5x4.285	0.09	6.493	1800	606
6	5900	6014.77	6190.204	-	6x4.285	0.06	10.313	1800	1)
	9800	9942.2	10232.407	1.653	6x4.285	0.04	17.047	1800	1)
	16000	16227.6	16701.17	2.698	6x4.285	0.02	27.824	1800	1)

Caution! Due to the slow actuation speed of the switching contacts caused by the high gear reductions, the change-over behaviour of the contacts is affected negatively.
From gear size 6 it is therefore recommended to use only the normally - closed contacts of the switches. Before using analog feedback systems (eg. potentiometer) please consult our technical department.

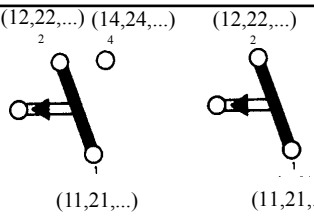
Switching Contacts

The contacts can either be connected through screw terminals for a cable cross section of 0.75mm^2 to 1.5mm^2 or through flat plugs 6.3 x 0.8mm or through a printed card with cage tension spring terminals for a cross section of 0.14 to 2.5mm^2. For contacts with flat - plug connection, insulated flat - plug receptables must be used at voltages above 25V AC and 60V DC.

Contact Designation	Contact type	Contact material	Switch actuation	Type of contact connection	Positive opening to VDE0660 part 200 from 7.92 EN60947T5-1	Switch Rating				Mec. life in millions of switching operations
						AC		24V DC	80V DC	
						Amps	Volts	Amps	Volts	
92	Change -over switch	Silver	Snap action	Screw terminal	Yes	6	250	6	2	10
97 [2)]	Change -over switch	Gold	Snap action	Screw terminal	Yes	6	250	6	2	10
99L	Change -over switch	Silver	Snap action	Printed Card	Yes	6	250	3	2	10
99P	Change -over switch	Silver	Snap action	Flat plug 6.3	Yes	3	250	3	2	10
96	Normally closed contact	Silver	Push action	Screw terminal	Yes	6	250	6	2	10

[1)] D C switching capacity with T=0 ms (pure resistive load)
D C switching capacity with inductive load on request
[2)] Contact 97 for SPC applications (gold contacts)

Change over switch
92
97
99L
99P

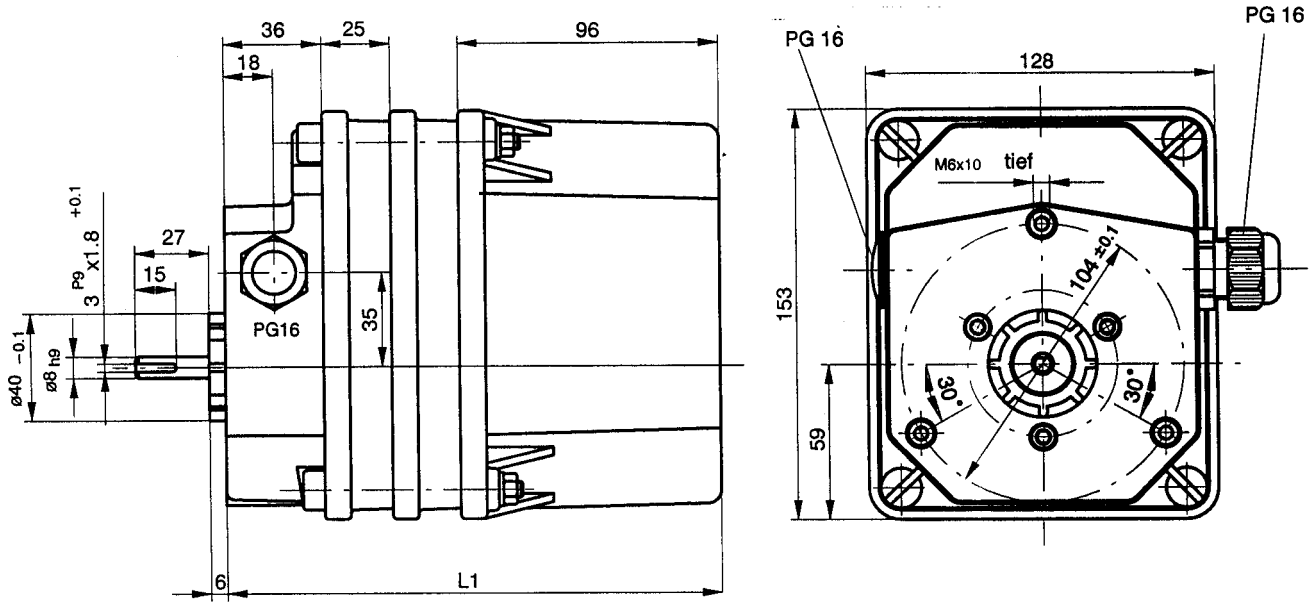


Normally closed contact
96

Dimensions

Plastic module housing IP66
Construction B14

Blanking Plug



Features:
Housing made of glass fibre reinforced polycarbonate with IP66 degree of protection
Modular design enables optimal space utilisation also for special types
Overall length can be extended as required with 25mm wide intermediate pieces.
(For foot and B5 Flange mounting consult Power Jacks)

		2 Contacts a		4 Contacts b		6 Contacts c		8 Contacts d	
		L1 (mm)	No of intermediate pieces	L1 (mm)	No of intermediate pieces	L1 (mm)	No of intermediate pieces	L1 (mm)	No of intermediate pieces
4,1NM 6,5NM 11NM	1	132	0	132	0	157	1	157	1
17,5 BM 29BM 48BM	2	132	0	132	0	157	1	182	2
75BM 125BM 205BM	3	132	0	132	0	157	1	182	2
323BM 540BM 880BM	4	132	0	157	1	182	2	207	3
1384BM 2288BM 3735BM	5	132	0	157	1	182	2	207	3
5900BM 9800BM 16000BM	6	157	1	157	1	182	2	207	3

More than 8 contacts on request
Dimensions withmore than 8 contacts and with special executions, eg. potentiometer, on request
For any further intermediate piece add 25mm to L1

RLS-51 Features and Options

Features

The RLS-51 geared cam limit switches are universal mechanical switching devices that have been designed for use in conjunction with cam discs based on a specific angle of rotation for indication of a large number of shaft revolutions. These cam discs serve to operate mechanical contacts. Design features include:-

Low friction planetary gearing with irreversible, self-locking worm adjustment of the cam discs.

Fixed cam adjustment in the housing. The adjusting worms of the cam discs are arranged so that they can be accessed from the same direction as the contact connections for optimal accessibility in confined conditions. Adjustment is possible during operation. The simplicity and accuracy of the cam adjustment is unsurpassed.

Block adjustment of all switching contacts jointly is made possible by a single adjusting worm (black) without the switching points of the individual switching contacts being altered with respect to each other.

Large cam disc diameter for good adjustability and high switchng point repeat accuracy.

Reinforced polycarbonate housing as standard with IP66 protection and a wide operating temperature range.

Modular design allows adaptation to suit individual requirements via intermediate pieces.

Options

- Position indicating plate for block adjustment.
- Potentiometer feedback drives (2 available) to suit single and multi-turn potentiometers
- Pulse transmitter with 50 pulses per revolution.
- Anti-condensation heater to prevent condensation and excessively low temperatures in the switches.
- Motor driven contact block adjuster.
- Mounting for encoders (incremental or absolute).
- Extended drive shaft for feedback devices.
- Aluminium housing for harsh environments and the fitment of large and heavy encoders, IP65 enclosure.
- Cam discs with a 40º cam angle can be provided at no extra cost. Other angles can be manufactured at extra cost on request.
- Stage technology tested unit can be provided to VBG 70 with test certificates.

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