

FRL90E SERIE



For Industrial, Crane's and Locking

- ➔ Heavy duty geared limit switch
- ➔ Up to 8 free programmable cams
- ➔ Different microswitches
- ➔ 1x various cable output
- ➔ Protection class IP64
- ➔ Protection against contact

Product description

Heavy geared Limit switch in round housing, with synchro flange easy to install in any application. 100% protected against contact and shaft construction from shaft to cam. Different ratio and number of switches available. The cover is sealed with an Sealing ring and easy to dismount with only two screws.

Application

This geared limit switch find the application in cranes, locking constructions. With the round design easy to build direct in series with a motor.

Technical Data

Usable gear ratio	1:1 – 2500:1	(more on request)
Program channels	1-8	(more on request)
Switching frequency	5 Hz	
Contact chatter time	<4 ms	
Actuating speed	>10 µm/s	
Contact break	0,6 mm	
Contact pressure	0,2 N	
Temperature range	-40 °C +85 °C	
Hysteresis	depend of ratio	
Repeatability	depend of ratio	
Weight	ca. 1,5 Kg	
MTBF (IEC 60050)	ON/OFF 10 Mio cycles	
Rotation speed	200'000 hours	
Shaft load	max. 1500 RPM	
Protection	radial 80N, axial 40N	
Shock resistance	IP 64 EN 60 529	
Vibrations resistance	2500m/s ² , 6ms IEC 68-2-27	
Humidity	200 m/s ² , 10....2000 Hz IEC 68-2-6	
	40% rh	

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Microswitch

Order code	Picture	Description
0		KS25B4 changeover contact for cable shoe 2.8x0.55mm silver contact
		switching current 4A 250 VAC / 1A 60VDC
1		KS26B4 changeover contact for cable shoe 2.8x0.55mm gold contact
		switching current 4A 250 VAC / 1A 60VDC
2		S840 V20 changeover contact for cable shoe 6.3x0.9mm silver contact
		switching current 10A 250V AC / 6A 24V DC
3		S870 W changeover with screwed silver contact
		switching current 10A 250V AC / 6A 24V DC
4		S845 controlled opening switch gold contact
		switching current 10A 250V AC / 6A 24V DC

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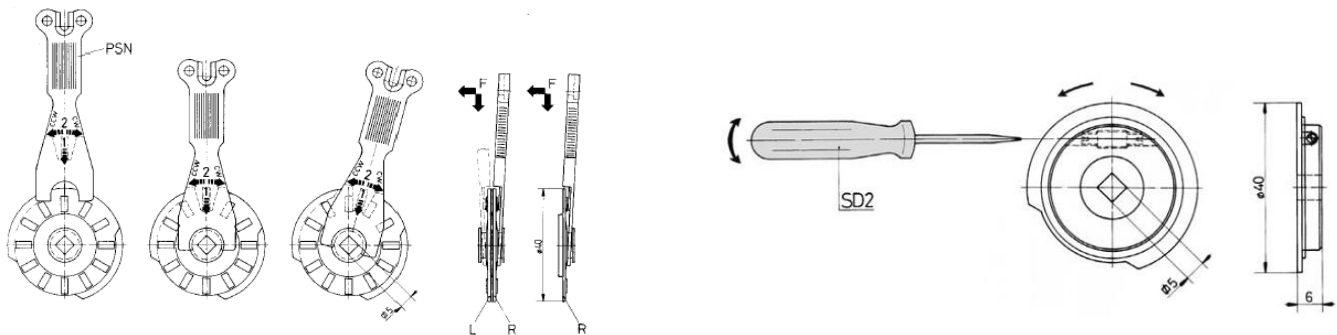
Cam types and adjustment

Type	Order code	Picture	Description
NK Cam	0		single cam
			adjustable with included PSN Key
			available with 20° opening angle
			Material: Grilon T300
	1		double cam
			adjustable with included PSN Key
free programmable from 6° - 180°			
			Material: Grilon T300
NV Cam	2		single cam
			adjustable with included screwdriver
			available with 20° opening angle
			Material: Grilon T300
	3		double cam
			adjustable with included screwdriver
free programmable from 6° - 180°			
			Material: Grilon T300

Adjusting guideline of NV / NK cams

To adjust the NK cam use the PSN key with levelling the cam and turn

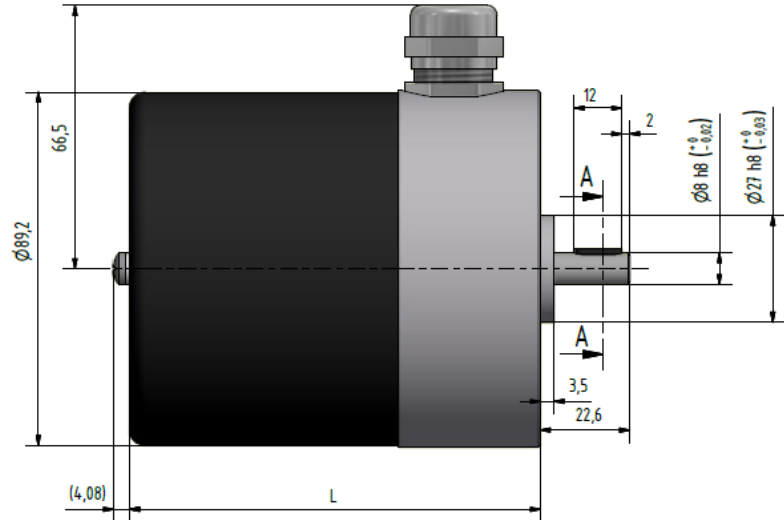
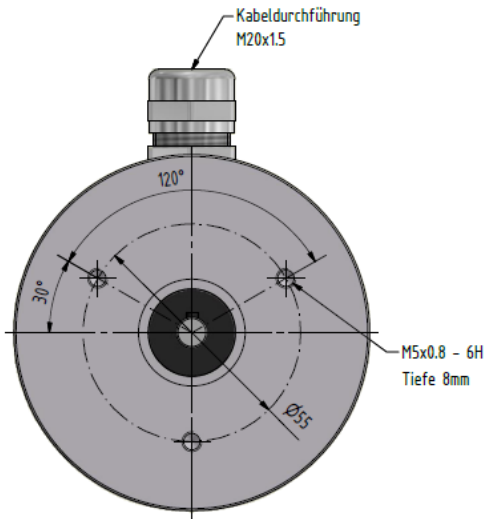
To adjust the NV cam use SD screwdriver and turn the small screw.



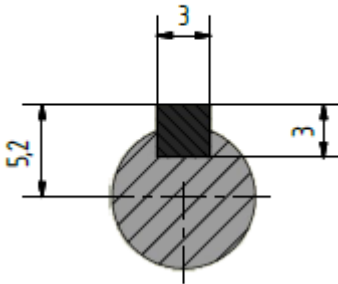
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Dimension in mm



A-A (3: 1)



Depend number of switches, length „L“ could change – ask us for exactly dimension

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Order code

FRL 90 ECO

939 x. 0 x. x x 1

939 FRL90ECO

RATIO

- 0 1 : 1
- 1 2 : 1
- 2 4 : 1
- 3 12,5 : 1
- 4 25 : 1
- 5 40 : 1
- 6 100 : 1
- 7 200 : 1
- 8 750 : 1
- 9 2500 : 1

CABLE GLAND

- 0 M20x1.5 cable gland

NUMBER OF SWITCHES

- 0 2 switches
- 1 3 switches
- 2 4 switches
- 3 5 switches
- 4 6 switches
- 5 7 switches
- 6 8 switches

TYPE OF SWITCH

- 0 KS25B4 changeover contact for cable shoe 2.8x0.55mm silver contact
- 1 KS26B4 changeover contact for cable shoe 2.8x0.55mm gold contact
- 2 S840 V20 changeover contact for cable shoe 6.3x0.9mm silver contact
- 3 S870 W changeover with screwed silver contact
- 4 S845 controlled opening switch gold contact

CAM

- 0 Single cam NK4101-20°
- 1 Double cam NK4201-180°
- 2 Single cam NV4101-20°
- 3 Double cam NV4201-180°

CABLE OUTLET

- 1 Radial



Do you have any Questions?

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