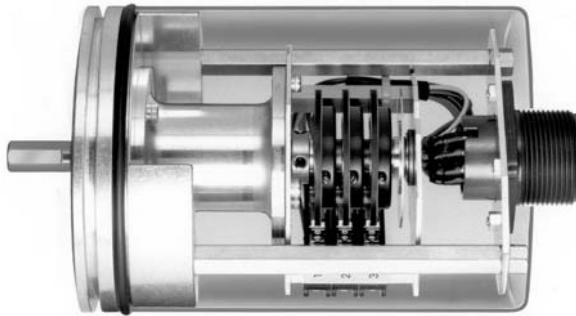


**Serie FRL 90P**



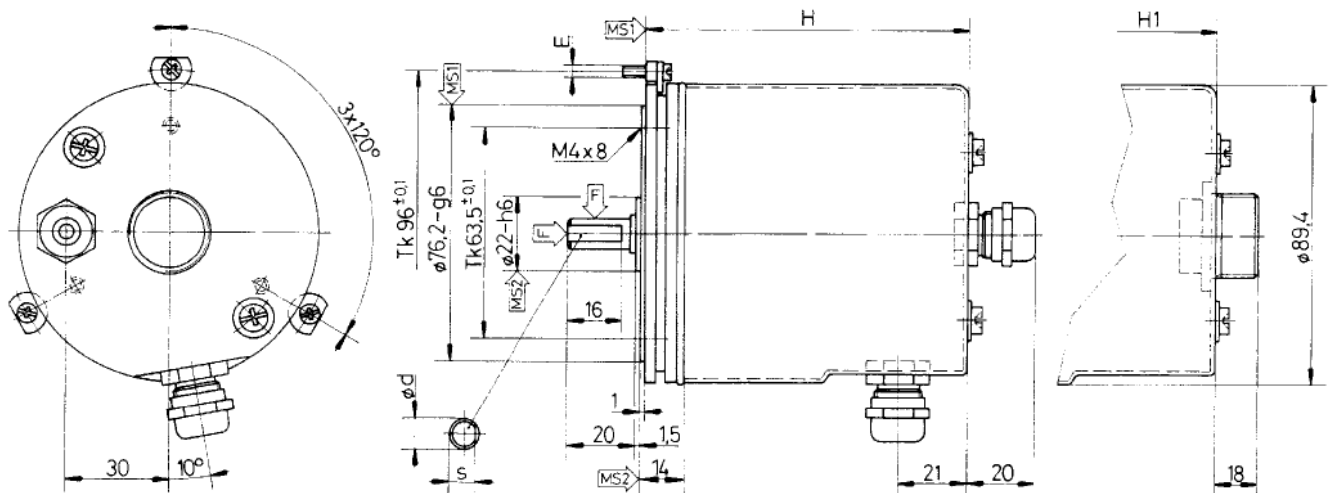
- **Spielarme Ausführung** (Planetengetriebe)  
 Low backlash execution (Planetary gears)
- **Präzision-Eingangsübersetzungen** 32 : 1 ... 512 : 1  
 Precision-Input ratios
- **Programmkanäle** (einstellbar) 3...7  
 Program channel (free setting)
- **Mikroschalter** 4A 250V AC / 1A 60V DC  
 Snap action switches
- **Schutzart** IP 64  
 Protection

**Technical data**

<p><b>Verstellbare Doppelnockenscheibe</b>                  Programmiermöglichkeiten                  Anzahl Impulse pro Umdrehung                  mit Nockenvertiefung 4...180° ≅ 1...50 %                  mit Nockenerhöhung 4...356° ≅ 1...99 %</p>	<p>Adjustable double cam                  Programming possibilities                  Number of pulses per revolution                  with cam profile valley 4...180° ≅ 1...50 %                  with cam profile peak 4...356° ≅ 1...99 %</p>	<p><b>NK4201</b>                   1                  COM <sup>(1)</sup> NC <sup>(2)</sup>                  COM <sup>(1)</sup> NO <sup>(3)</sup></p>
<p><b>Mikroschalter</b>                  Schaltleistung                  Kontaktmaterial                  Übergangswiderstand</p>	<p>Snap action switch                  Switching power                  Contact material                  Contact resistance</p>	<p><b>KS25F4</b>                  4A 250V AC / 1A 60V DC                  Ag 999                  &lt; 25mΩ</p>
<p><b>Anzeigeskala</b></p>	<p>Indicator scale</p>	<p>S360 (0°...360°)</p>
<p><b>Option</b>                  Einfachnockenscheibe (feinjustierbar)                  Impulslängen                  Anzahl Impulse pro Umdrehung                  mit Nockenvertiefung                  mit Nockenerhöhung</p>	<p>Option                  Single cam (fine adjustment)                  Impulse length                  Number of pulses per revolution                  with cam profile valley                  with cam profile peak</p>	<p><b>NV4101.20°</b>                  6° / 20°                  1                  COM <sup>(1)</sup> NC <sup>(2)</sup>                  COM <sup>(1)</sup> NO <sup>(3)</sup></p>
<p>Mikroschalter                  Kontaktmaterial                  Übergangswiderstand</p>	<p>Snap action switch                  Contact material                  Contact resistance</p>	<p><b>KS26F4</b>                  Au 4...6 μm                  &lt; 10mΩ</p>

**Outline drawing**

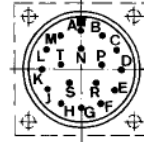
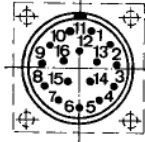
∅ d = 9-h8    s = 8,5    E = M3 (4-40 UNC)    F = ⇨40 N ⇩80 N    MS = Montagefläche / Mounting surface H = Option



Technische Änderungen vorbehalten / Subject to change without prior notice

**Serie FRL 90P**

**Electrical connection**



Flanschdose männlich (Ansicht auf Steckerseite)  
 Connector male (View from face side)

SFP16 (16 Pin) DIN

MS 3102 A20-29P (17 Pin) MIL

Drahtfarbe Wire colour	Schalter Switches	Anschluss Function	Pin-Nr.	Pin-Nr.
Black	1	COM (1) NC (2)	1	A
White		NO (3)	2	B
Black	2	COM NC	3	C
Brown		NO	4	D
Black	3	COM NC	5	E
Green		NO	6	F
Black	4	COM NC	7	G
Yellow		NO	8	H
Black	5	COM NC	9	J
Grey		NO	10	K
Black	6	COM NC	11	L
Pink		NO	12	M
Black	7	COM NC	13	N
Blue		NO	14	P

Anschlüsse / Connection (Typ F)

mit Lötstift ø1 mm / with soldering pin DIA .039 inch

Signalfarben nach / Cable designation at  
 Kabelquerschnitt für Schalter / Cable section for switches

DIN 47100  
 0.34 mm<sup>2</sup> / AWG 22

**Zubehör** / Accessories  
 Befestigungsbride / Hold down clamp  
 Programmierschlüssel / Program key

3 x BMF (M3x12 mm)  
 PSN

**Option**  
 Gegenstecker gerade (weiblich) / Female cable connector straight plug  
 Gegenstecker gerade (weiblich) / Female cable connector straight plug  
 Gegenstecker 90° (weiblich) / Female right angle connector 90°

SGS16.PG9 (16 Pin) DIN  
 MS 3106 A20-29S (17 Pin) MIL  
 MS 3108 B20-29S (17 Pin) MIL

**Serie FRL 90P**

**Order key**

FRL90 P      **3**    **M1**    **1**    **1**

Dimension: Ø 3.50 inch

Size (mm) / Number of switches:

Dimension: 3  
 106 mm -> Size (H)  
 130 mm -> Size (H1)  
**3** = 3 Switches  
 3 Adjustable double cam (NK42012)  
 1 Program key (PSN)  
 Indicator scale S360 (0°...360°)

Dimension: 5  
 114 mm -> Size (H)  
 146 mm -> Size (H1)  
**5** = 5 Switches  
 5 Adjustable double cam (NK4201)  
 1 Program key (PSN)  
 Indicator scale S360 (0°...360°)

Input ratios (Shaft to switches): -> M = more stage

**M1** = 128:1  
**M2** = 256:1  
**M3** = 512:1  
**M4** = 32:1            On request  
**M5** = 65:1            On request

Cable outlet

**1** = axial    H1            R  
**2** = radial    Option            S

Male receptacle:

**1** = SD12 (12 Pin) DIN  
**2** = SD16 (16 Pin) DIN  
**3** = MS3102 A 18-1P (10Pin) MIL  
**4** = MS3102 A 20-27P (14Pin) MIL  
**5** = MS3102 A 20-29P (17Pin) MIL

Accessoires:    Hold down clamp                    3 x BMF (M3 x 12 mm)