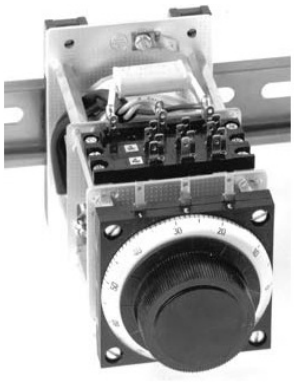
# 1 Turn-Motorized potentiometer
# 1 Gang-Motorpotentiometer

MICRONOR
automation components

**Serie MPR** DIN Rail End Mount



- **Feindrahtpotentiometer** **R1**...**R2** (5W)
  Wire-wound potentiometer
- **Widerstandwerte** **100R**...**100K** (Ω)
  Resistance
- **Endlagenkontakte einstellbar** **2**
  Adjustable limit switches
- **Nutzkontakte** (frei programierbar) **1**...**4**
  Program channels (free setting)
- **Rückwand- Schnellbefestigung** **35 DIN 46277 / EN 50022**
  Quick rail base mounting

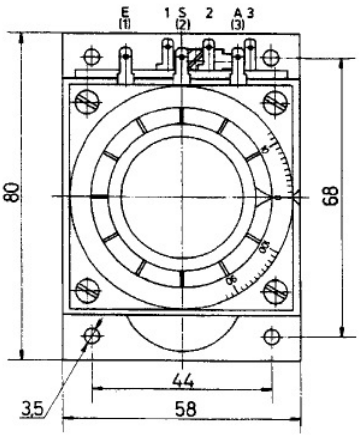
## Application:

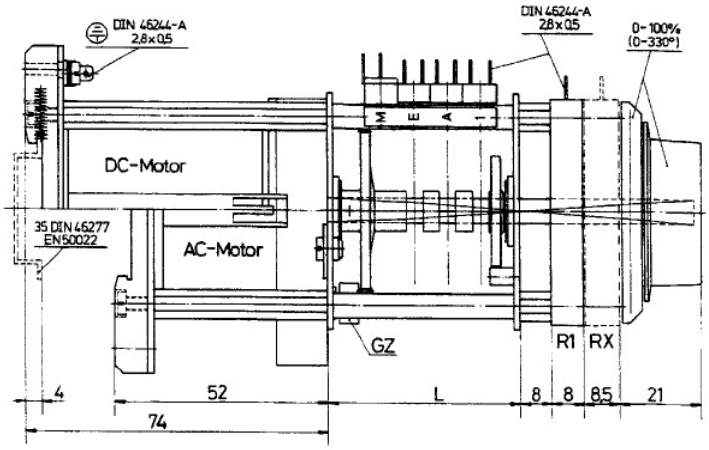
- Motorized potentiometers are basically the best in the field of control and regulation technics
- The possibility to mount several potentiometers on the same shaft allows also a remote display of the position of the potentiometer
- Supplementary cams can be used to give limit signals depending on the position of the potentiometer
- Supplementary cams can also be used to offset a residual resistance of the potentiometer at the zero point
- One supplementary cam can be used as zero point interlocking

## Design:

- High precision wire-wound potentiometer with high resolution and linearity
- Potentiometer directly driven by the cam shaft
- Two adjustable limit switches controlling the rotation angle of the potentiometer
- Solid mechanical Stopps preventing damage to potentiometers
- Available with AC or DC motors
- Friction clutch protecting the unit when manually operated
- The modular design allows quick delivery practically without delay, voltage resistance and cycle time according to your requirements

## Outline drawing



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## Serie MPR

### Order key

| | MPR41 | 00 | 1 | C1 | 1 | 1 | 0 |
|---|---|---|---|---|---|---|---|

incl. 1 Potentiometer, each further costs additionally in accordance with price list accessories
max. 3 Potentiometer

Size / Dimension (mm) / Number of switches:

2 -->Size
39 mm -->Dimension (L)
**02** = 2 Switches
2 Adjustable limit switches (NK4101/20°) + 0 Program channels free setting (NK4201)

3 -->Size
47 mm -->Dimension (L)
**03** = 3 Switches
2 Adjustable limit switches (NK4101/20°) + 1 Program channels free setting (NK4201)
1 Program key (PSN)

6 -->Size
71 mm -->Dimension (L)
**06** = 6 Switches
2 Adjustable limit switches (NK4101/20°) + 4 Programm channels free setting (NK4201)
1 Program key (PSN)

Cycle times (sec.):

**1** = 10s **2** = 15s **3** = 20s **4** = 30s **5** = 45s
**6** = 60s **7** = 75s **8** = 90s **9** = 120s **10** = 180s

Synchronus motor: Power supply (AC / DC) Frequency 50Hz (60Hz)

| | | CW | | CCW | | |
|---|---|---|---|---|---|---|
| **C1** | = 24 / | 24V | | | AC | |
| **C2** | = 48 / | 48... | | 50V | AC | |
| **C3** | = 110 / | 110... | | 120V | AC | |
| **C4** | = 220 / | 220... | | 240V | AC | |
| **G1** | = 24 / | 24V | | ± 0.1 | DC | |
| **G2** | = 12 / | 12V | | ± 0.1 | DC | On request |

Wire-wound potentiometer: Resistance

**1** = 100Ω **2** = 200Ω **3** = 500Ω **4** = 1KΩ **5** = 2KΩ
**6** = 5KΩ **7** = 10KΩ

Wire-wound potentiometer: Resistance

**8** = 2.5KΩ **9** = 20KΩ **10** = 100KΩ

Wire-wound potentiometer: Resistance

**0** = -
**1** = PRSG.2
**2** = PSG.2
**3** = PRSG.3
**4** = PSG.3

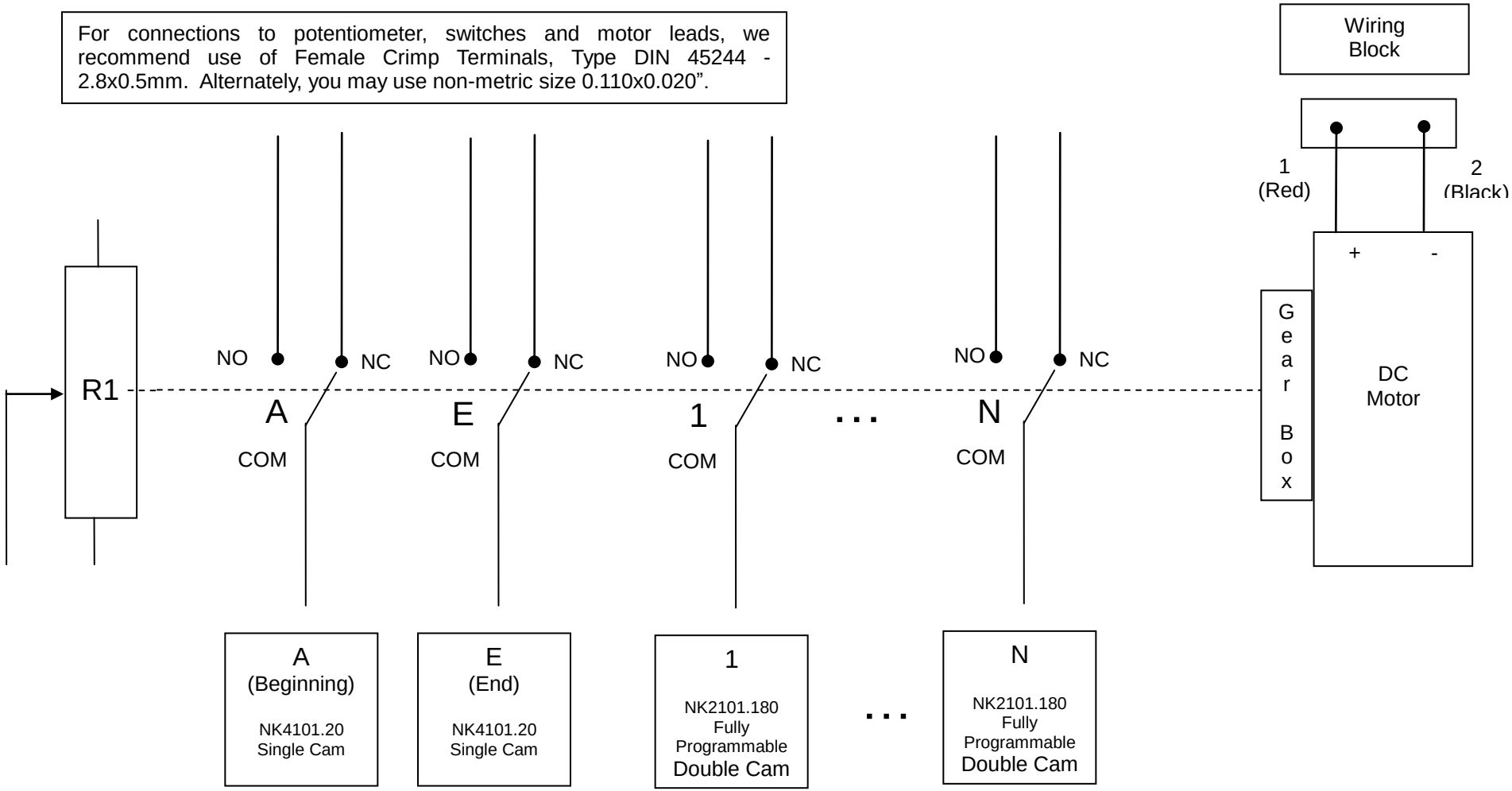
**Ex.: MPR4102-3-C2-119-0**

**meant for the potentiometer choice:**
**R1=100Ω, R2=100Ω, R3=20KΩ**

**Special products will be produced under a new article number.**

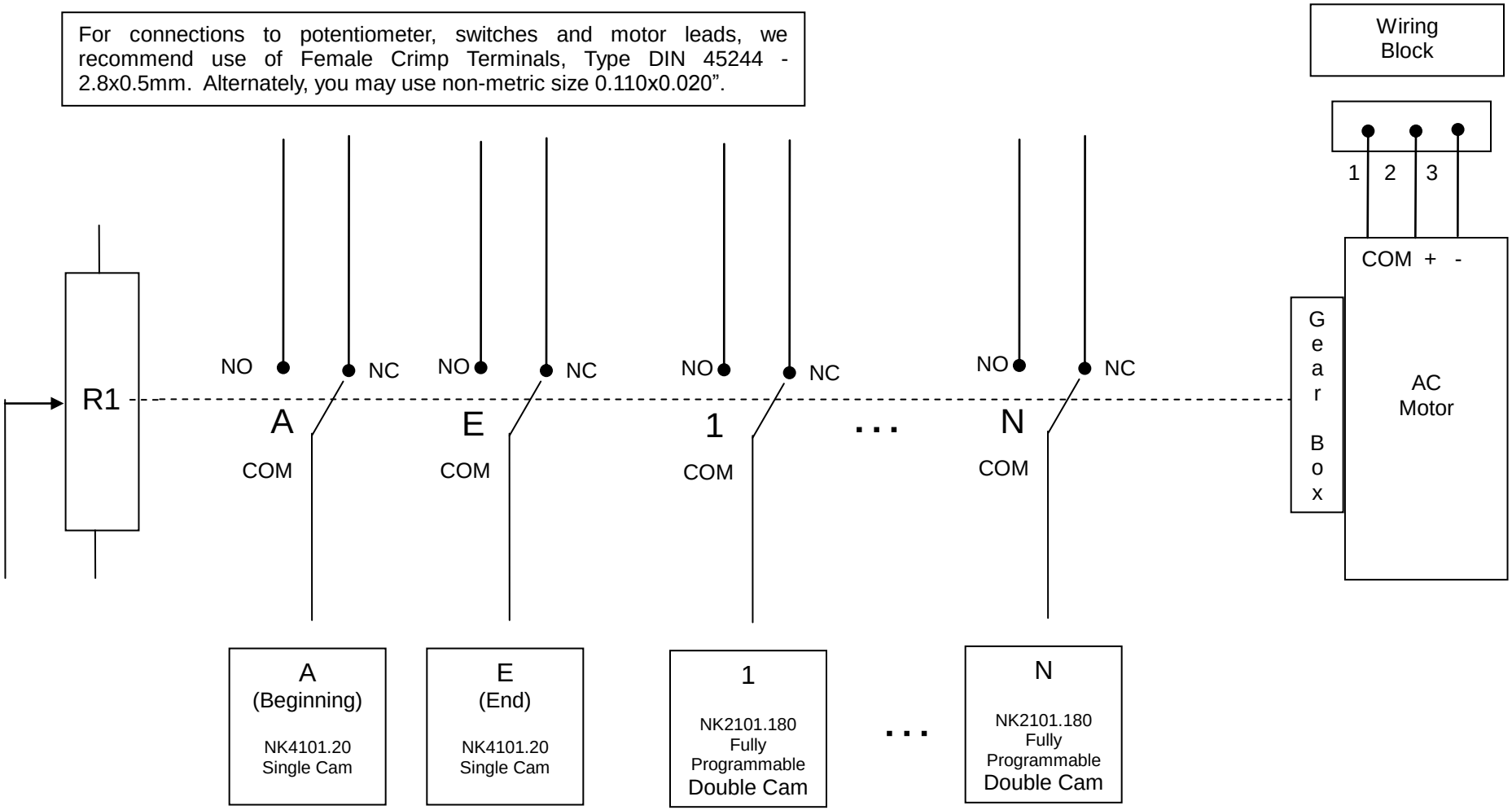
## DC Direct Drive Motorized Potentiometer Electrical Diagram (All MP/MPF/MPP/MPR/etc. Series)

For connections to potentiometer, switches and motor leads, we recommend use of Female Crimp Terminals, Type DIN 45244 - 2.8x0.5mm. Alternately, you may use non-metric size 0.110x0.020".



## AC Direct Drive Motorized Potentiometer Electrical Diagram (All MP/MPF/MPP/MPR/etc. Series)

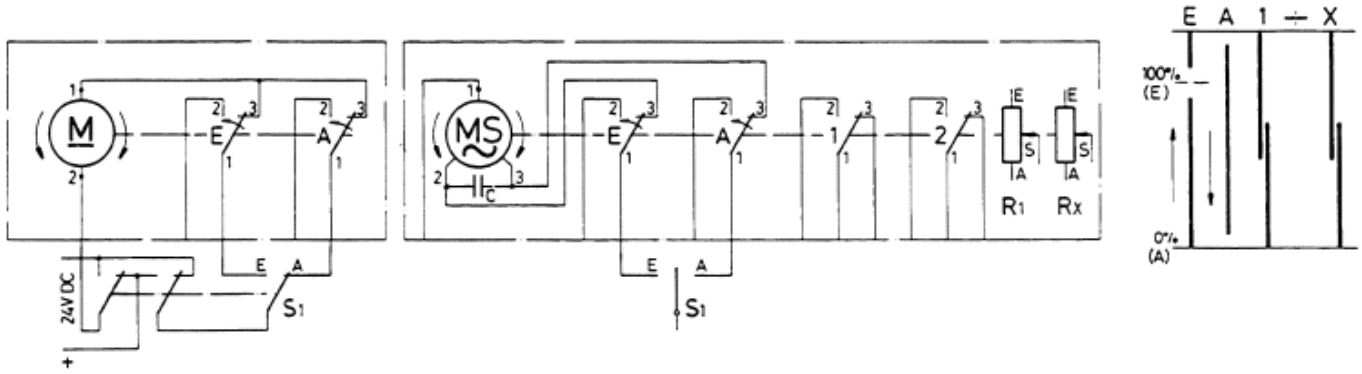
For connections to potentiometer, switches and motor leads, we recommend use of Female Crimp Terminals, Type DIN 45244 - 2.8x0.5mm. Alternately, you may use non-metric size 0.110x0.020".



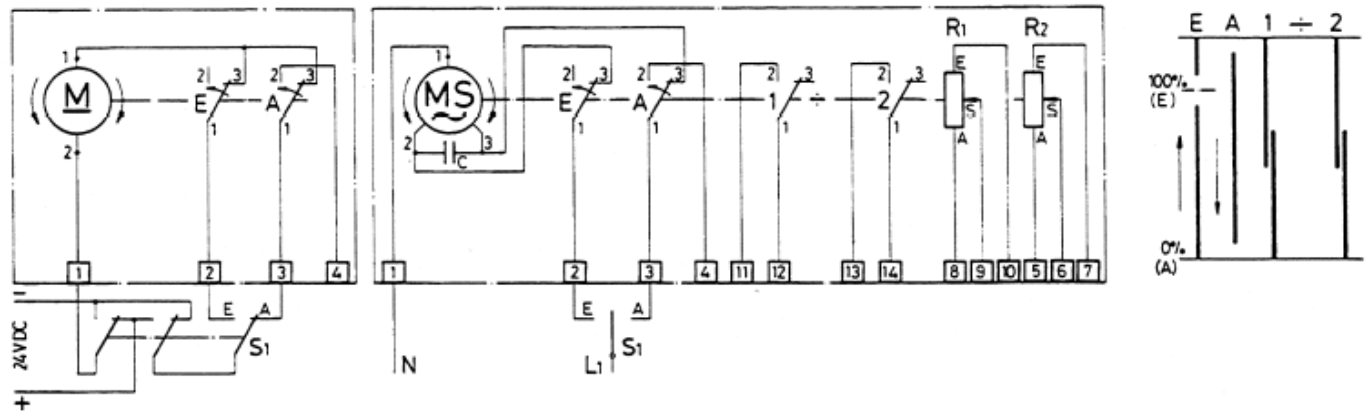
## Typical MP Series Motorized Potentiometer Connections

The two primary single-cam switches are designated **A** (German "Anfang"=Beginning) and **E** (German "Ende"=End which are typically set to the 0% and 100% limits, respectively, of the potentiometer. The A/E limit switches can also be set to any other region of the potentiometer that is specific to an application.

**Motorpotentiometer** Motorized potentiometer **MPP**, MPR, **MPF**, MPRE, **MPPS**, MPPR, **MPZ**




**Motorpotentiometer** Motorized potentiometer **MPC** (KG13)

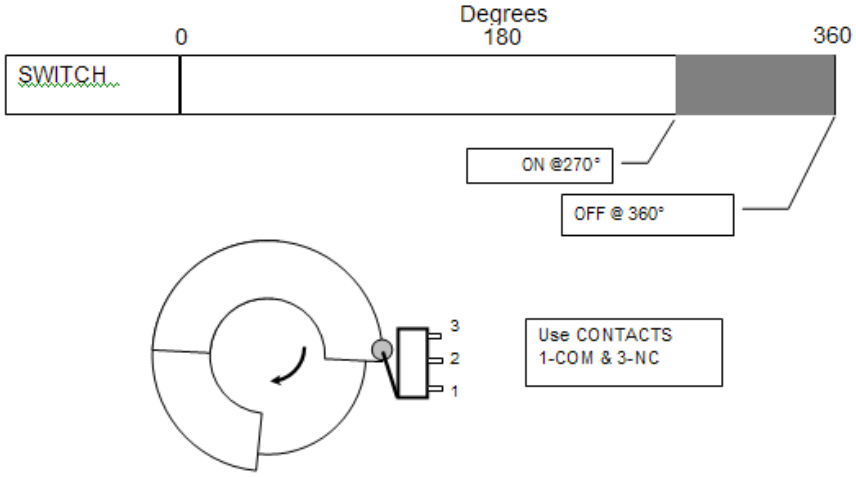


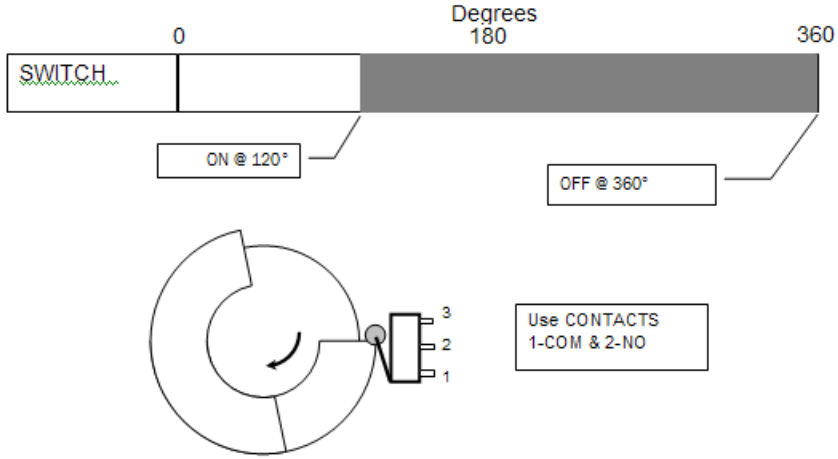
## Cam Programming (General Guidance)

Single cams can produce only a fixed single pulse (20° wide) if switch channel uses standard NV4101.20 single cams.

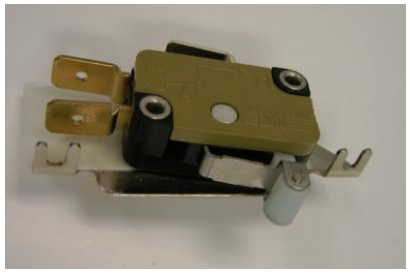
Double cams (NK4201.180) can be programmed for a switching profile of 4° to 356°. Due to the design of the cam, switches cannot be disengaged for more than 180°.

If the system requires that the switch does not make contact for more than 180°, the normally closed (NC) contact must be wired. For programs greater than 180°, the NO contact is used. The right-hand illustrations depict these two cam programming cases. It is always helpful to diagram the desired switch settings before wiring and programming the cams.




KS25B4 Precision
Snap Action Switch



S84 Series
Enclosed Microswtich

Micronor Switch Types (General Guidance)

## MICRONOR Standard

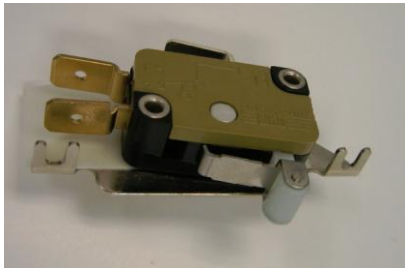
Most Micronor standard products used the proprietary and proven Model KS25B4 Precision Snap Action Switch. Electrical rating is 4A 250 VAC/ 1A 60 VDC.

For replacements, order: **Micronor P/N 6099.00.035**

## For Special Heavy Duty Applications

Some applications require a higher rated, enclosed microswitch. Typical for use in special motor potentiometer, cam timers and rotary limit switch applications is the S84 series Controlled Opening Microswitch. Electrical rating is 10A 250 VAC/6A 24VDC.

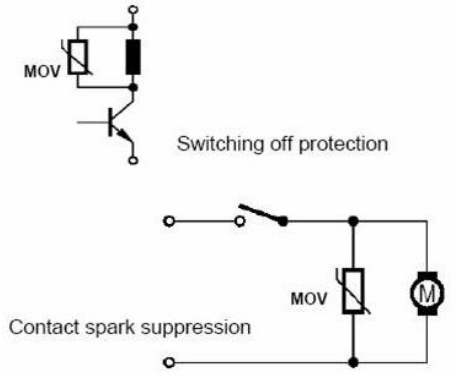
For replacements, order: **Micronor P/N 6099.26.024**



Higher rated microswitches (to 20A) as well as MIL-rated switches are also available.

## Contact Arcing Protection With Relay (Inductive) Loads

Consult www.littlefuse.com for MOV (varistor) product information and application notes



## GENERIC Wiring and Cam Programming Table (to be filled in by user)

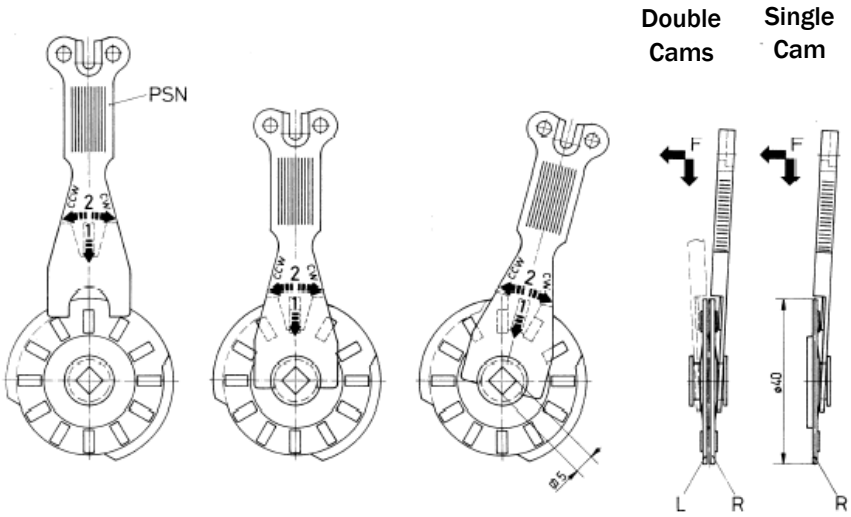
| Wiring Block Contact No. | CAM PROGRAM (in Degrees) | | SWITCH CONTACT DESIGNATION | | | Customer Circuit ID | SWITCHING DIAGRAM 0° 360° |
|---|---|---|---|---|---|---|---|
| | ON | OFF | COM | NC | NO | | ■ Denotes Closed Contact |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |

**EXAMPLE:**

| Wiring Block Contact No. | CAM PROGRAM (in Degrees) | | SWITCH CONTACT DESIGNATION | | | Customer Circuit ID | SWITCHING DIAGRAM 0° 360° |
|---|---|---|---|---|---|---|---|
| | ON | OFF | COM | NC | NO | | ■ Denotes Closed Contact |
| 1 | 10 | 90 | X | | | SW1 |  |
| 2 | | | | X | | SW1 | |
| 3 | 45 | 225 | X | | | SW2 |  |
| 4 | | | | | X | SW2 | |

## Cam Programming (NK Series with PSN Black key)

Programming the switching profile is done with the PSN (black) cam programming tool. The general technique is shown in the diagram to the right.

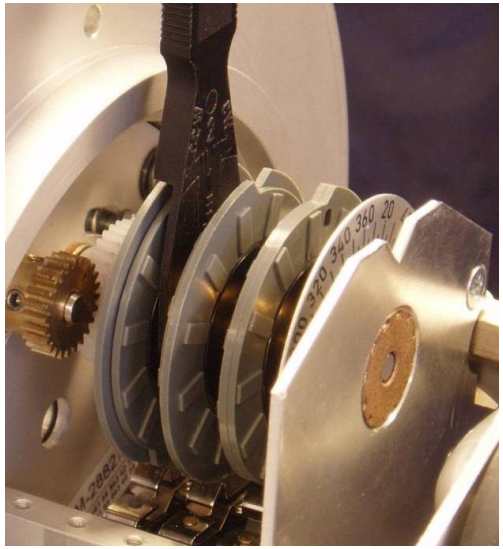



Step 1 Insert PSN key into unit, as shown in right hand figure, with the numbered side away from the cam and the notched side towards the cam.

Step 2 While gently applying pressure against the cam with the key, rotate the cam to the desired position.

Step 3 For double cams (NK4201), adjust the other side of the cam by flipping over the key and repeating steps 1 and 2 on the other side of the cam.

Step 4 Test the unit to confirm that the switch engages and disengages at the selected positions.



**Single Cam (20º)** **Double Cam (1 side Shown, 180º)**