1 Turn motorized potentiometer protective housing
1 Gang Motorpotentiometer Schutzgehäuse

MICRONOR
automation components

Serie MPC VAC | DIN Rail Mount, Protective Housing, AC Operation

- **Feindrahtpotentiometer** — Typ **DPC**
  Wire-wound potentiometer
- **Widerstandwert** — **100** R ... **100** K (5 W)
  Resistance
- Endlagenkontakte einstellbar — 2 + 3
  Adjustable limit switches
- Nutzkontakte frei programierbar — 1 + 2
  Program channels free setting
- **Synchronmotor** (CW / CCW) — **24** V ; **48** V ; **110** V ; **220** VAC (50 / 60 Hz)
  Synchronous motor (CW / CCW)
- **DIN-Schnellbefestigungsklammer** — **35 DIN** 46277 / EN 50022
  DIN Quick rail mounting clamp

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

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1 Gang Motorpotentiometer Schutzgehäuse

MICRONOR
automation components

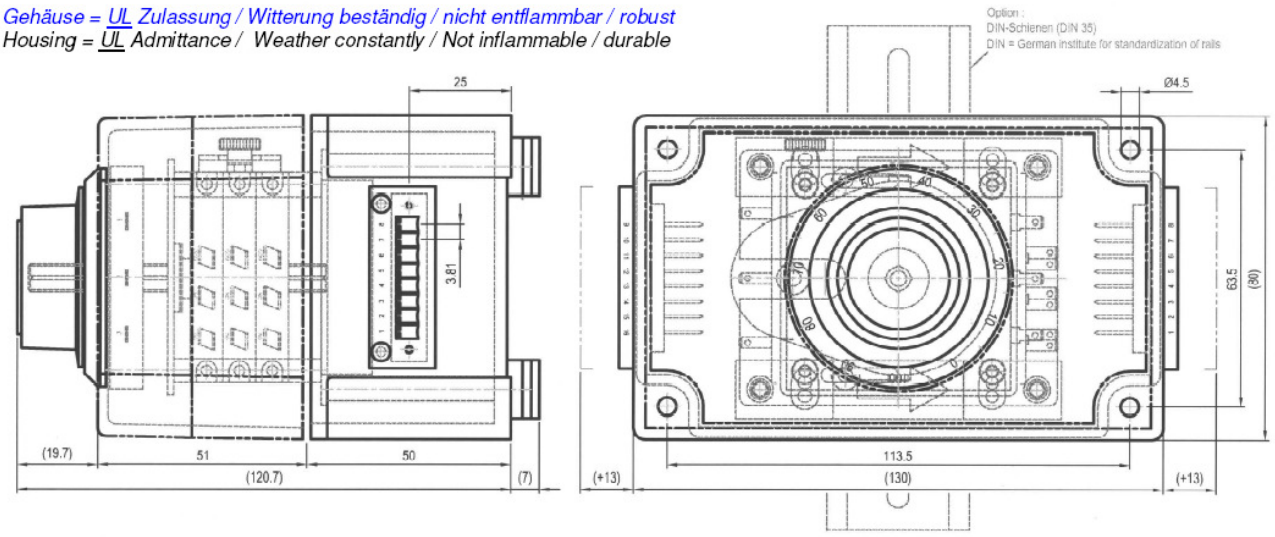
Serie MPC VAC

Technical data

Wire-wound potentiometer	Typ **DPC (5W)**
Resistance	**100 R … 100 K**
Resistance tolerance	± 5%
Linearity	< 0.15%
Power rating	5W (40°C)
Slider current	100mA
Dielectric strength	900 VDC
Rotation angle (mech. / electr.)	330°
Adjustable single cam	2x **NK4101**.20°
Programming possibilities	
Number of pulses per revolution	1
With cam profile valley 20° (connection)	COM / NC
With cam profile peak (connection)	COM / NO
Adjustable double cam	1x **NK4201.180°**
Programming possibilities	
Number of pulses per revolution	1
With cam profile valley 4 … 180° ≈ 1 … 50 %	COM / NC
With cam profile peak 4 … 356° ≈ 1 … 99 %	COM / NO
Precision snap action switch	
Double solder and plug socket connection	
Common contact	COM (1)
Actuating contact normally open¨	NC (2)
Rest contact, normally closed	NO (3)
Snap action switch	**KS 25 B4**
Switching power	4A 250VAC / 1A 60 VDC
Contact meterial (Contact resistance)	Ag 999 (< 25 mΩ)
Snap action switch	**KS 26 B4**
Contact meterial (Contact resistance)	Au 4 … 6 µm (< 10mΩ)

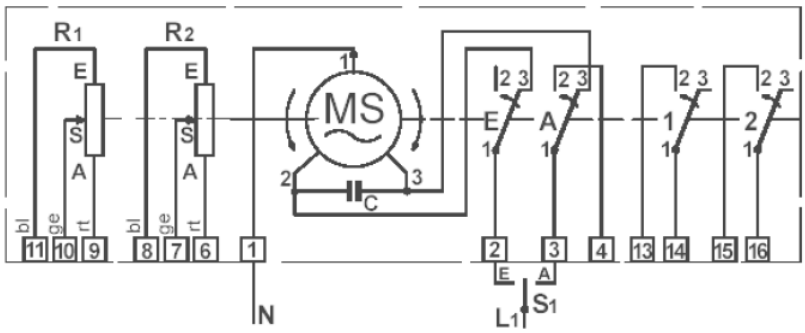
Outline drawing

Gehäuse = UL Zulassung / Witterung beständig / nicht entflammbar / robust
Housing = UL Admittance / Weather constantly / Not inflammable / durable



Serie MPC VAC

Electrical connection



Zulassung:
Überspannungskategorie II: Anschluss an eine ***feste elektrische Installation innerhalb eines Gehäuses oder Gebäudes ist erlaubt***
Isolierstoffgruppe III des Steckers unter Verschmutzungsgrad 3:
Es tritt leitfähige Verschmutzung auf oder trockene, nichtleitfähige Verschmutzung, aber keine beständige Leitfähigkeit
Empfehlung: Die Drähte des Steckers in uneingestecktem Zustand anschrauben.

Admittance:
Over voltage category II: Connection with a firm (fixed) ***electric installation within a casing or building is allowed***
Insulant group III of the plug under pollution level 3
There appears conductive pollution or dry, non-conductive pollution, but no constant conductivity
Recommendation: screw the wires with the plug unplugged

lose mit geliefert / Loose with supplied
2x Steckverbinder mit Schraubklemme / 2x Plug connector with screw wedges

1 Turn motorized potentiometer protective housing
1 Gang Motorpotentiometer Schutzgehäuse

MICRONOR
automation components

Serie MPC VAC

Order key

	MPC41	2.1	1	C1	1	1	1	1

VAC-Motor

Size / Dimension (mm) / Number of switches:

2 -->Size
3 Switches
2.1 = 2 Adjustable limit switches (NK4101/20°) + 1 Program channels free setting (NK4201)
1 Program key (PSN)
Knob inside; PC125
C Motor!

2 -->Size
3 Switches
2.2 = 2 Adjustable limit switches (NK4101/20°) + 1 Program channels free setting (NK4201)
1 Program key (PSN)
Knob outside; PC100
C Motor!

3 -->Size
4 Switches
3.1 = 2 Adjustable limit switches (NK4101/20°) + 2 Program channels free setting (NK4201)
1 Program key (PSN)
Knob outnside; PC100
C Motor!

4 -->Size
1 Program key (PSN)
Knob outside; PC125 (for 2 Potentiometer)
C Motor!

Micronor Inc. Newbury Park, CA USA ☎+1-805-499-0114 +1-805-499-6585 sales@micronor.com www.micronor.com

Cycle times (sec.):

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

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

Wire-wound potentiometer (Size 2.1, 2.2, 3.1, 3.2): Resistance

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

Wire-wound potentiometer (Size 2.1, 2.2, 3.1, 3.2): Resistance

8 = 2.5KΩ **9** = 20KΩ **10** = 100KΩ

Wire-wound potentiometer (Size 3.2): Resistance

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

Wire-wound potentiometer (Size 3.2): Resistance

8 = 2.5KΩ **9** = 20KΩ **10** = 100KΩ

Special products will be produced under a new article number.

1 Turn motorized potentiometer protective housing
1 Gang Motorpotentiometer Schutzgehäuse

MICRONOR
automation components

Serie MPC VDC | DIN Rail Mount, Protective Housing, DC Operation

Feindrahtpotentiometer Wire-wound potentiometer	Typ DPC
Widerstandwert Resistance	100R ... 100K (5W)
Endlagenkontakte einstellbar Adjustable limit switches	2 + 3
Nutzkontakte frei programmierbar Program channels free setting	1 + 2
Synchromotor (CW / CCW) Synchronous motor (CW / CCW)	12V; 24V DC
DIN-Schnellbefestigungsklammer DIN Quick rail mounting clamp	35DIN 46277 / EN 50022

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
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Design:

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- 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

1 Turn motorized potentiometer protective housing
1 Gang Motorpotentiometer Schutzgehäuse

MICRONOR
automation components

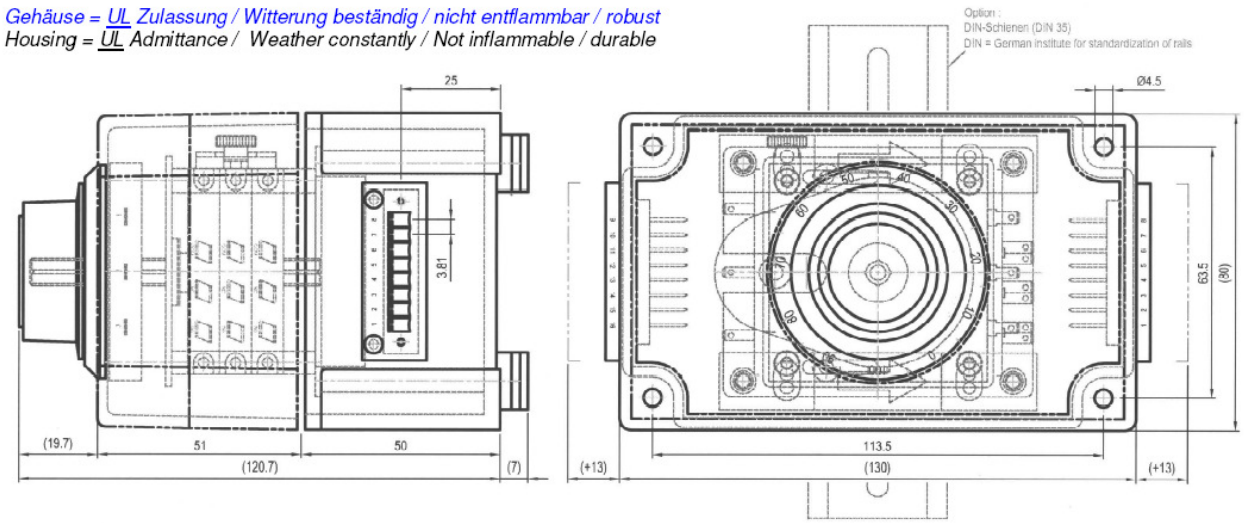
Serie MPC VDC

Technical data

Wire-wound potentiometer	Typ **DPC (5W)**
Resistance	**100 R … 100 K**
Resistance tolerance	± 5%
Linearity	< 0.15%
Power rating	5W (40°C)
Slider current	100mA
Dielectric strength	900 VDC
Rotation angle (mech. / electr.)	330°
Adjustable single cam	2x **NK4101**.20°
Programming possibilities	
Number of pulses per revolution	1
With cam profile valley 20° (connection)	COM / NC
With cam profile peak (connection)	COM / NO
Adjustable double cam	1x **NK4201.180°**
Programming possibilities	
Number of pulses per revolution	1
With cam profile valley 4 … 180° ≈ 1 … 50 %	COM / NC
With cam profile peak 4 … 356° ≈ 1 … 99 %	COM / NO
Precision snap action switch	
Double solder and plug socket connection	
Common contact	COM (1)
Actuating contact normally open¨	NC (2)
Rest contact, normally closed	NO (3)
Snap action switch	**KS 25 B4**
Switching power	4A 250VAC / 1A 60 VDC
Contact meterial (Contact resistance)	Ag 999 (< 25 mΩ)
Snap action switch	**KS 26 B4**
Contact meterial (Contact resistance)	Au 4 … 6 µm (< 10mΩ)

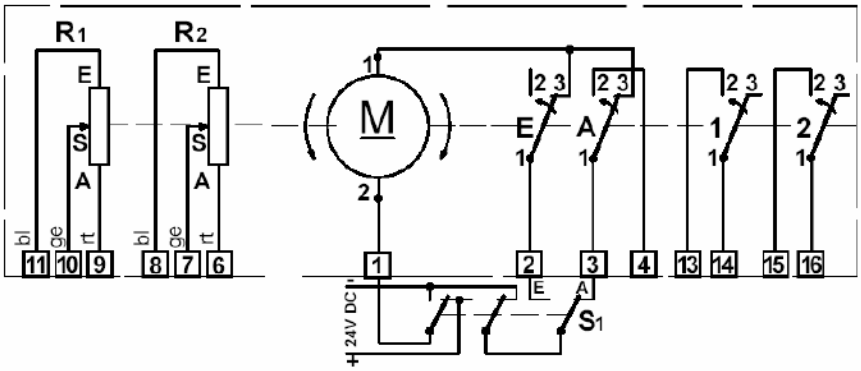
Outline drawing

Gehäuse = UL Zulassung / Witterung beständig / nicht entflammbar / robust
Housing = UL Admittance / Weather constantly / Not inflammable / durable



Serie MPC VDC

Electrical connection



Zulassung:
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Admittance:
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Insulant group III of the plug under pollution level 3
There appears conductive pollution or dry, non-conductive pollution, but no constant conductivity
Recommendation: screw the wires with the plug unplugged

Serie MPC VDC

Order key

MPC41	2	1	G1	1	1

VDC-Motor

Size / Dimension (mm) / Number of switches:

2 = 2 -->Size, 2 Switches, 2 Adjustable limit switches (NK4101/20°) + 0 Program channels free setting (NK4201), Knob inside; PC125, G Motor!

3.1 = 3 -->Size, 3 Switches, 2 Adjustable limit switches (NK4101/20°) + 1 Program channels free setting (NK4201), 1 Program key (PSN), Knob inside; PC125, G Motor!

3.2 = 3 -->Size, 4 Switches, 2 Adjustable limit switches (NK4101/20°) + 2 Program channels free setting (NK4201), 1 Program key (PSN), Knob inside; PC125, G Motor!

Cycle times (sec.):

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

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

		CW	CCW	
G1 = 24	/	24V	± 0.1	DC
G2 = 12	/	12V	± 0.1	DC

Wire-wound potentiometer: Resistance

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

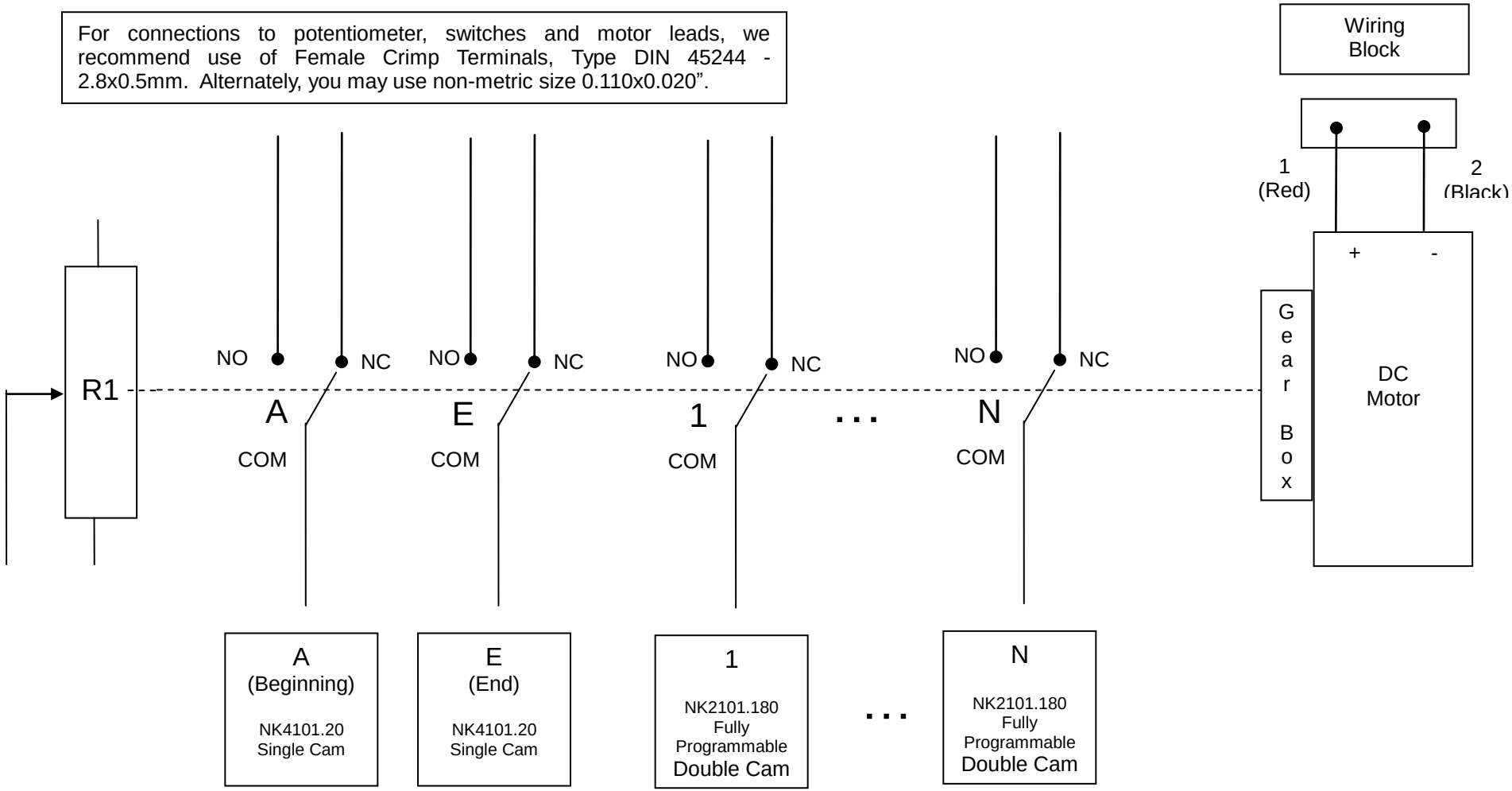
Wire-wound potentiometer: Resistance

8 = 2.5KΩ **9** = 20KΩ **10** = 100KΩ

Special products will be produced under a new article number.

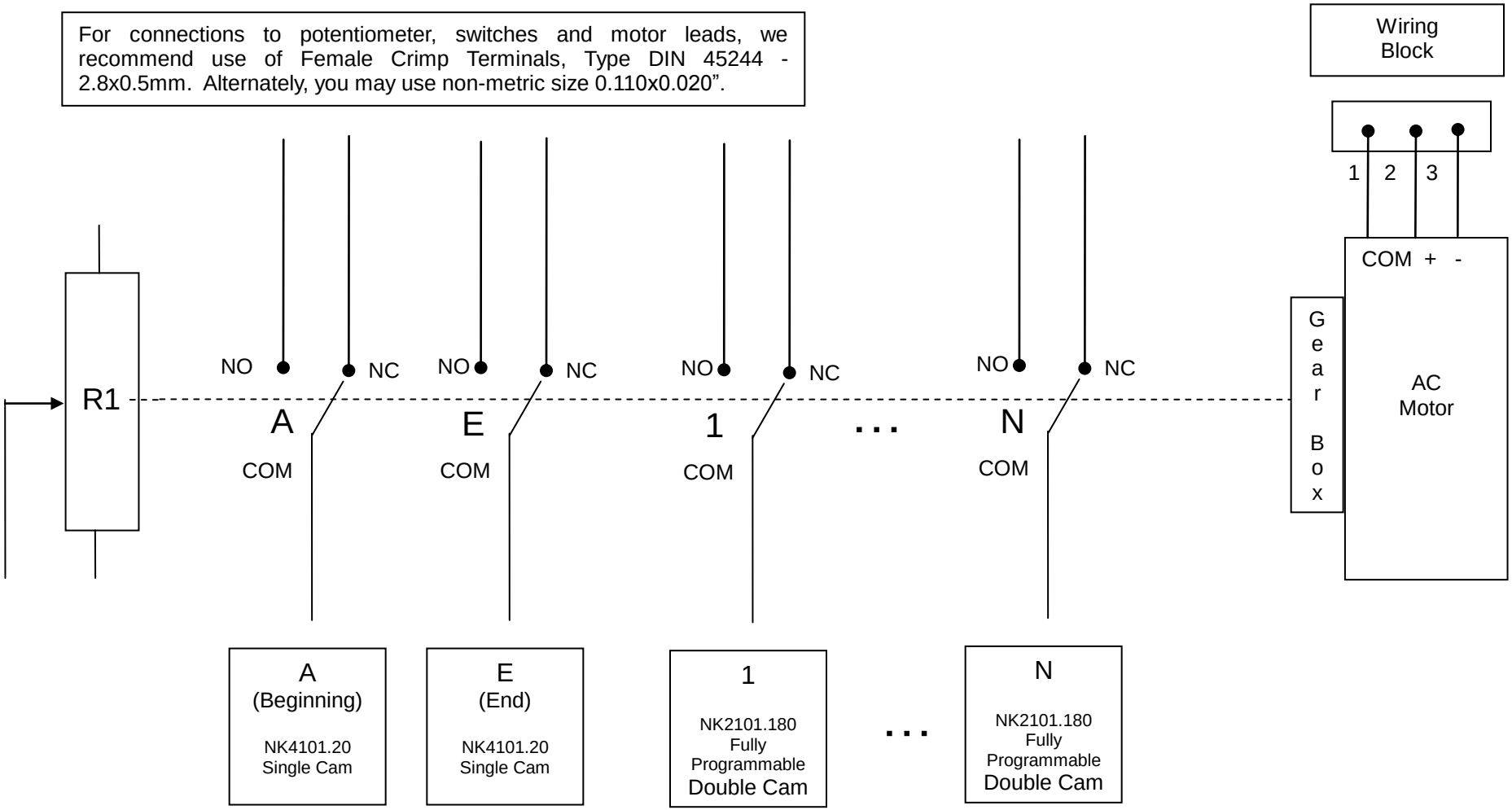
DC Direct Drive Motorized Potentiometer Electrical Diagram (All MP/MPF/MPP/MPR/etc. Series)

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)

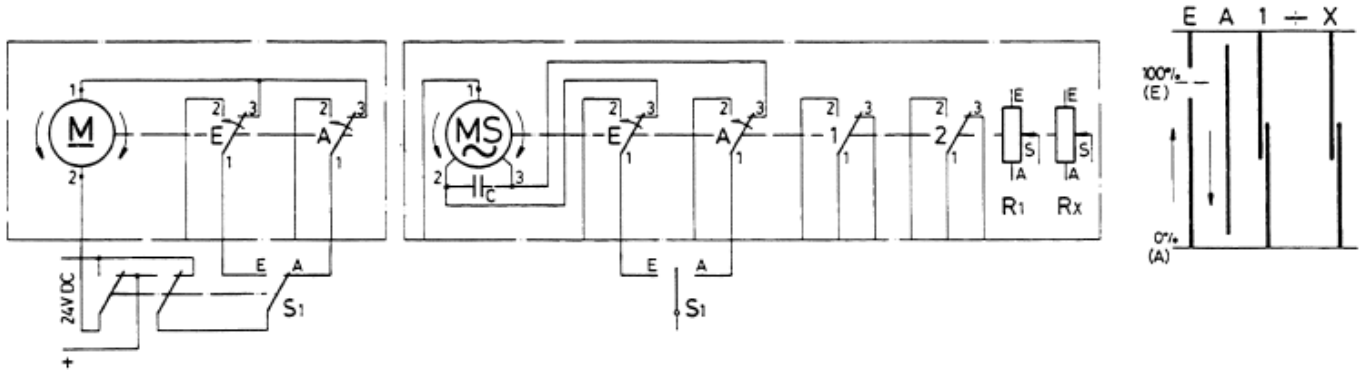
For connections to potentiometer, switches and motor leads, we recommend use of Female Crimp Terminals, Type DIN 45244 - 2.8x0.5mm. Alternately, you may use non-metric size 0.110x0.020".



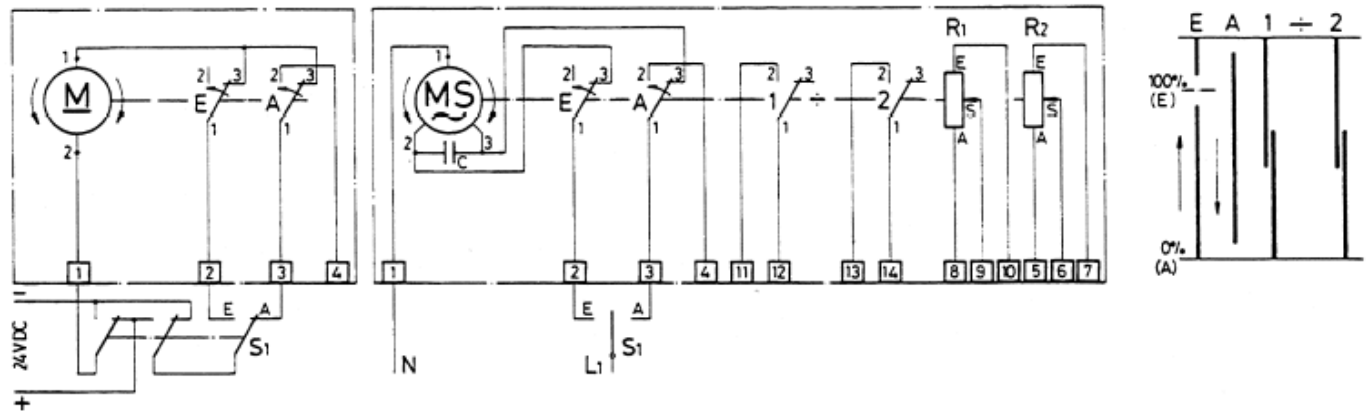
Typical MP Series Motorized Potentiometer Connections

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)

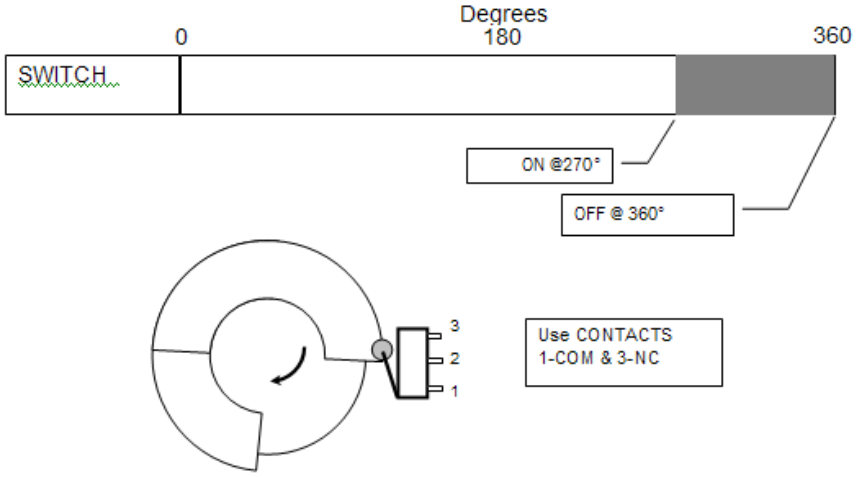


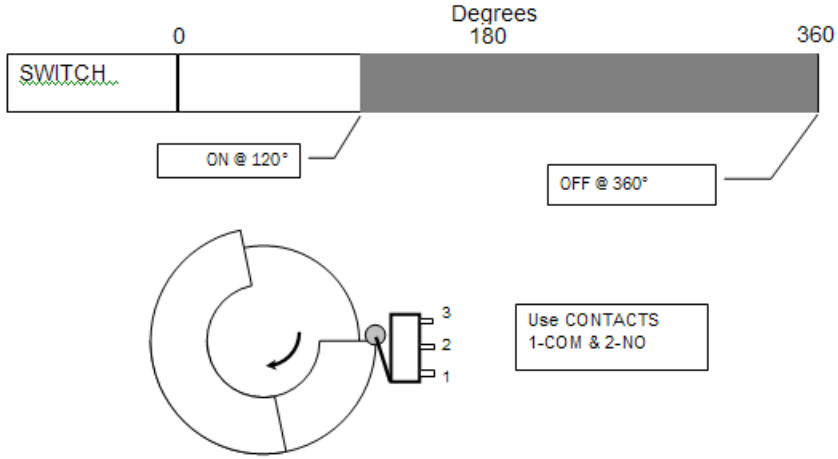
Cam Programming (General Guidance)

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

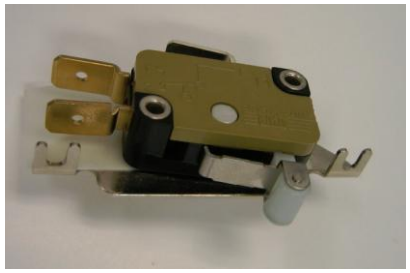
Double cams (NK4201.180) can be programmed for a switching profile of 4° to 356°. Due to the design of the cam, switches cannot be disengaged for more than 180°.

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

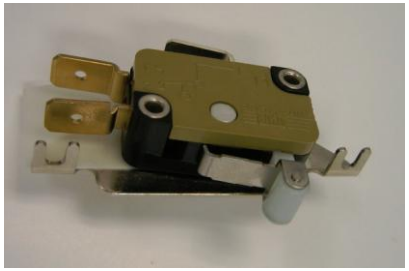
Most Micronor standard products used the proprietary and proven Model KS25B4 Precision Snap Action Switch. Electrical rating is 4A 250 VAC/ 1A 60 VDC.

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.

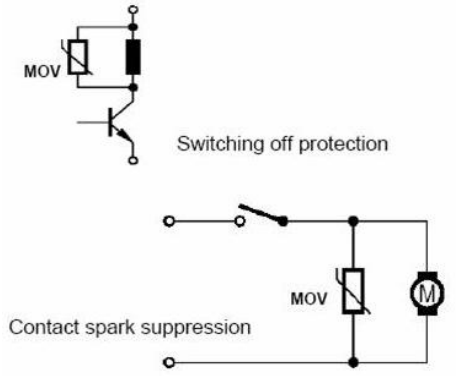
For replacements, order: **Micronor P/N 6099.26.024**



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)

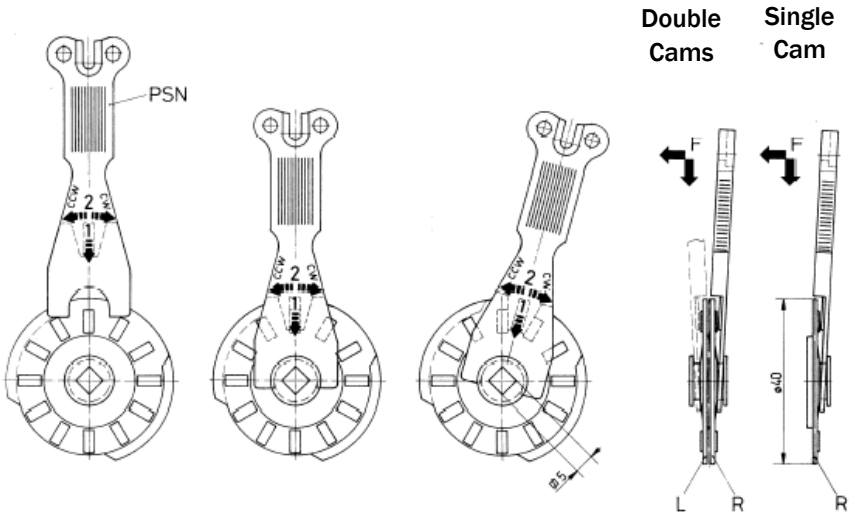
Wiring Block Contact No.	CAM PROGRAM (in Degrees)		SWITCH CONTACT DESIGNATION			Customer Circuit ID	SWITCHING DIAGRAM 0° 360°
	ON	OFF	COM	NC	NO		■ Denotes Closed Contact
1							
2							
3							
4							
5							
6							
7							
8							

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.

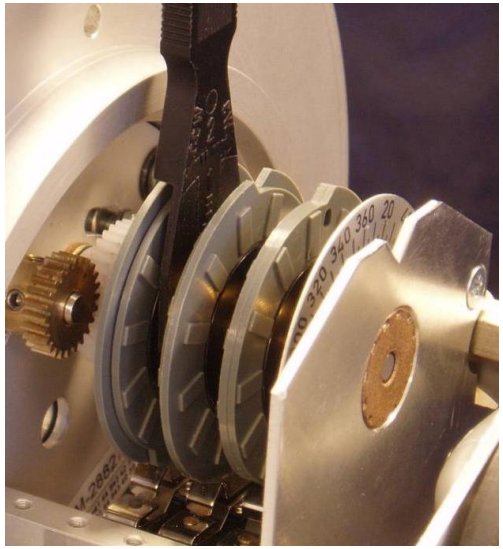


Step 1 Insert PSN key into unit, as shown in right hand figure, with the numbered side away from the cam and the notched side towards the cam.

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)**