10-Turn Motorpotentiometer for backward mounting

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MPRZ SERIE

For control unit, switching programs

- **Wire-wound potentiometer (2W)**
- **Resistance 100R … 100K**
- **Adjustable limit switches**
- **Program channels (free settings)**

Product description

High class motorized potentiometer with fine draw potentiometer. Easy and fast programmable of each channel. Different cycle time are available for maximum use of potentiometer range. With the removable turning knob it will be easy to mount them to a front plate in control enclosure.

Application

Any time controlled application which has to be controlled with micro switches. Usable in motors, locking and emergency backup generators.

Technical Data

Cycle time	(see order code)
Cam	NK
Adjustable limit switches	NK4101/20°
Program channels (free setting)	NK4201/180°
Snap action switch	
	KS25B4
Mechanical life time	> 20 Mill.
Switching frequency	5 Hz
Contact chatter time	<4 ms
Actuating speed	>10 µm/s
Contact breack	0,6 mm
Contact pressure	0,2 N
Temperature range	-40 °C +85 °C
MTBF (IEC 60050)	
Switch	ON/OFF 10 Mio cycle
Mechanical	200'000 hour
Shock resistance	2500m/s2, 6ms IEC 68-2-27
Vibrations resistance	200 m/s2, 10….2000 Hz IEC 68-2-6
Humidity	40% rh

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Microswitch

Type:	KS25B4
Function:	change over
Connection:	Cable shoe 2.8x0.55mm
Contact material:	Silver plated

Cams

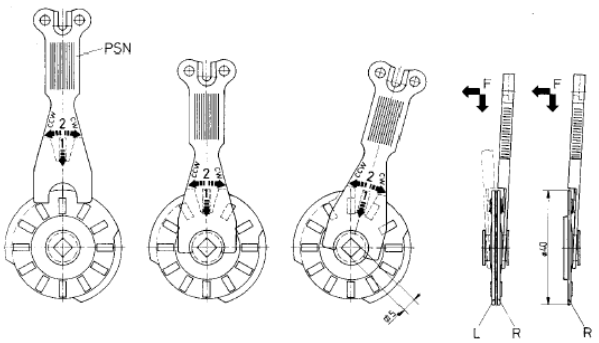
Type:	NK4201.180 °
Function:	double cam
Adjustment range:	6 - 180° (free programmable)
Material:	Grilon T300

Potentiometer

Rotation angle mech. / electr.	10 x 360° = 3600° (+10%)
Resistance tolerance	±5 %
Linearity	<0.15%
Rotation life	1 Mill. Turn
Power rating	2 W (40 °C)
Slider current	50 mA
Temperature coefficient	40 ppm / °C nom. (-55 °C +125 °C)
Rotational noise (ENR)	100 Ω / 1 mA
End resistances	0,5 % R tot. min. 0,5 Ω
Dielectric strength	1500V DC
Torque	0,2...0,5 Ncm
Torque (Nut M10)	100 Ncm
Synchronous run	0,5 %

Adjusting guideline of NK cams

To adjust the NK cam use PSN programming Key which is included in the shipment. Put them to the NK cam and turn until you get the right switching point of your switch.



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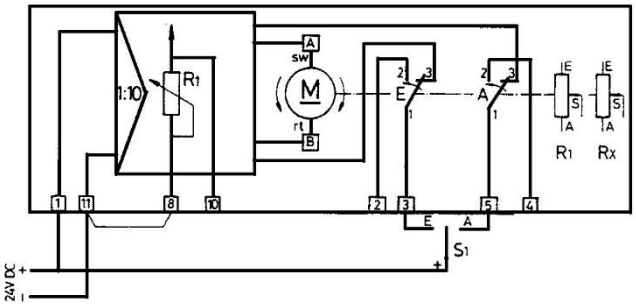
Stop and control units

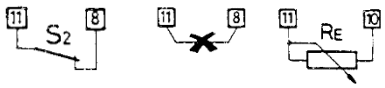
The stop and control units can be optionally adapted to this motor potentiometer. On the one hand, they can be used to quickly stop the engine for more precise control as well as to vary the speed or start-up time.

PRSG.2 Control Print Stop and Switch E and A

Stop and speed control unit
Speed control unit: 1:1 to 1:8 (+/-10%)
Number of end positions: 2 limit switches
Number of useful contacts: none
Flow time: 20ms
No-load current: 30mA
Supply voltage: 24VDC
Connection: Terminal block (max. 1.5mm2)



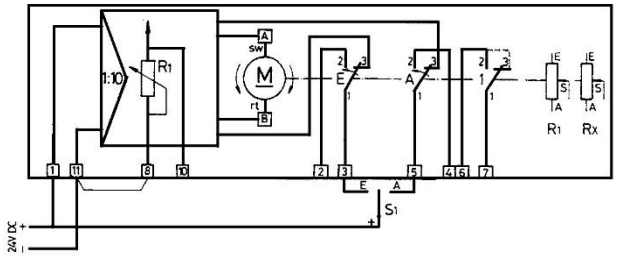
Overdrive Control potentiometer



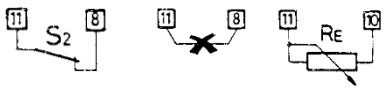
Internal control trimmer **R1**
Selector **S1** (CW / CCW)

PRSG.3 Regulator Print Stop and Switches E and A + 1

Stop and speed control unit
Speed control unit: 1:1 to 1:8 (+/-10%)
Number of end positions: 2 limit switches
Number of useful contacts: 1 user contact (adjustable)
Flow time: 20ms
No-load current: 30mA
Supply voltage: 24VDC
Connection: Terminal block (max. 1.5mm2)



Overdrive Control potentiometer



Internal control trimmer **R1**
Selector **S1** (CW / CCW)

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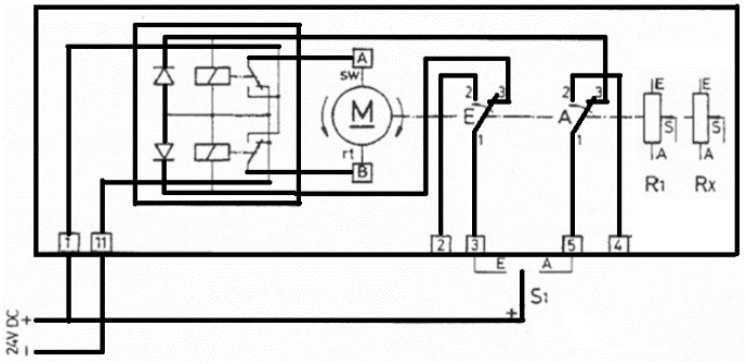
PSG.2 Stop Unit for DC Motors - Two Switches

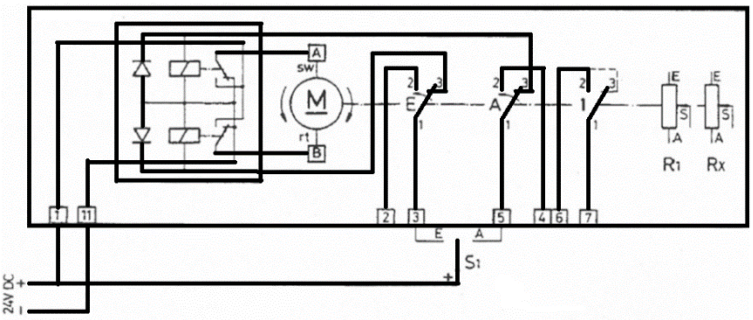
Stop unit
Number of end positions: 2 limit switches
Number of useful contacts: none
Flow time: 20ms
No-load current: 30mA
Supply voltage: 24VDC
Connection: Terminal block (max. 1.5mm2)



Selector **S1** (CW / CCW)

PSG.3 Stop Unit for DC Motors - Three Switches

Stop unit
Number of end positions: 2 limit switches
Number of useful contacts: 1 user contact (adjustable)
Flow time: 20ms
No-load current: 30mA
Supply voltage: 24VDC
Connection: Terminal block (max. 1.5mm2)



Selector **S1** (CW / CCW)

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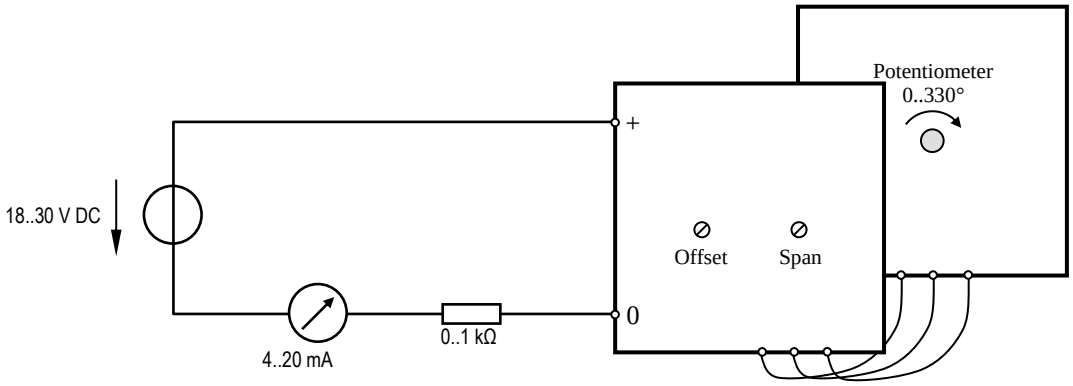
MR265 4-20mA Power Interface 2 Conductor Engineering

Connection type	2- Conductor technology
Supply voltage:	18...30 V DC (specifications apply to 24V)
Power consumption:	4...20 mA
Max. Output Power:	400 mW
Max. Load:	1 kΩ
Output:	4...20 mA
Linearity:	± 0.5 %
Temperature coefficient:	100 ppm/K
Temperature range:	0...70°C

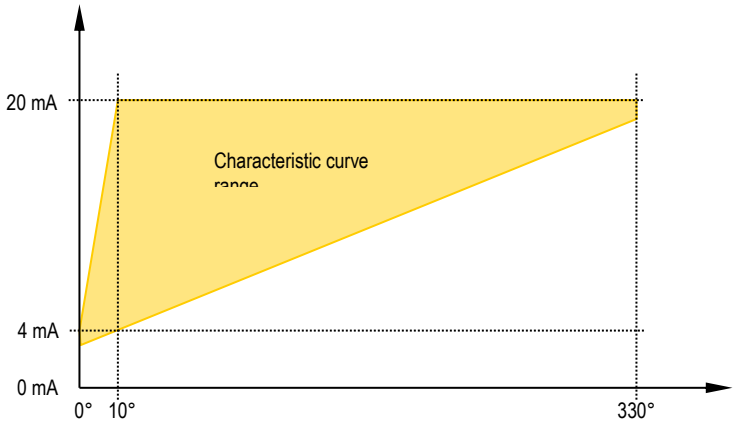


Settings

The shaft of the potentiometer can be rotated a maximum of 330°. The output characteristic of 4..20 mA can be set as follows.

Min. Offset:	0°
Max. Offset:	10°
Min. steepness:	48.5 µA/°
Max. steepness:	1.6 mA/°

Based on these values, the characteristic curve range is displayed, in which the line of the characteristic curve can be freely placed.



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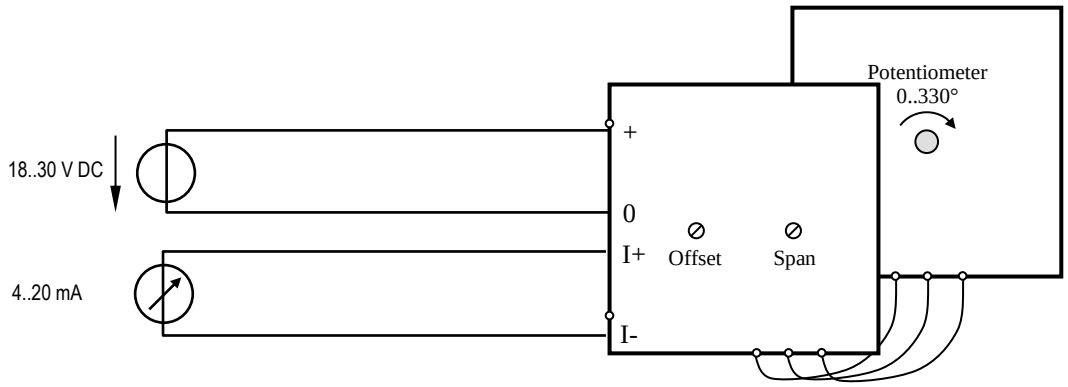
MR265 4-20mA Power Interface 4 Wires, GND Power Supply, 2 Sensor Lines

Connection type	4- Conductor technology
Supply voltage:	18...30 V DC (specifications apply to 24V)
Power consumption:	4...20 mA
Max. Output Power:	400 mW
Max. Load:	1 kΩ
Output:	4...20 mA
Linearity:	± 0.5 %
Temperature coefficient:	100 ppm/K
Temperature range:	0...70°C



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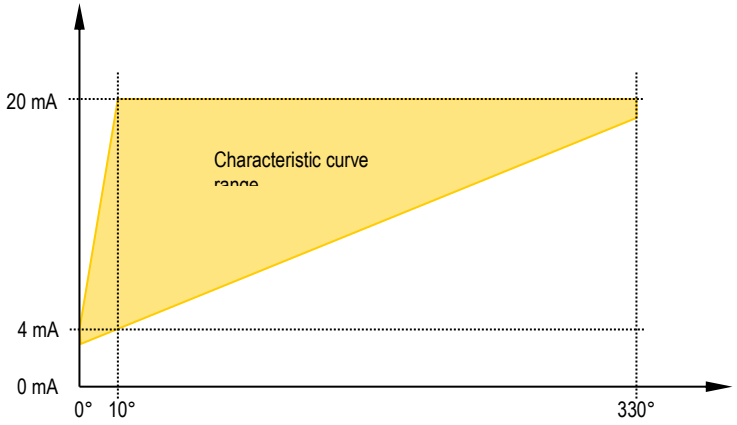

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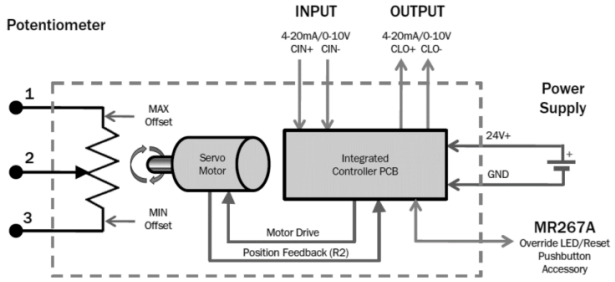
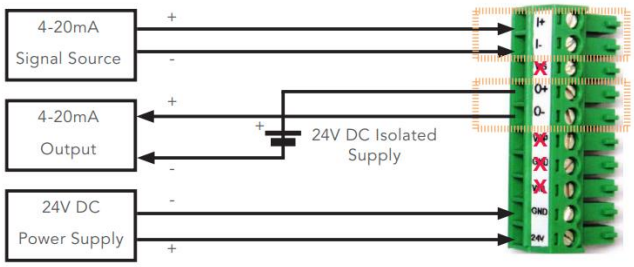
MR267 4-20mA Current Input for Drive Isolated

Supply voltage:	20...26 V DC (specifications apply to 24V)
Power consumption	max. 500mA
Input signal:	4-20mA
Output:	4-20mA
Entrance isolation	1kV
Position accuracy:	0.25% typical
Ramp-up time:	10 seconds to 120 seconds
Minimum Setting:	0% to 25%
Maximum setting:	52% to 100%



Connection diagram:



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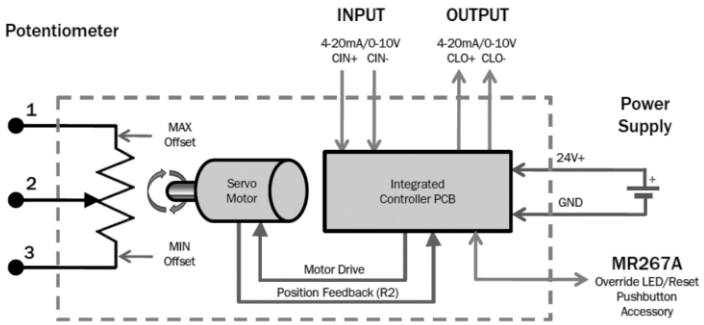
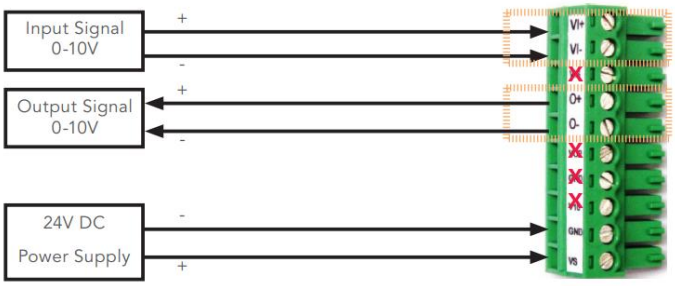
MR267 0-10V Voltage Interface for Control Isolated

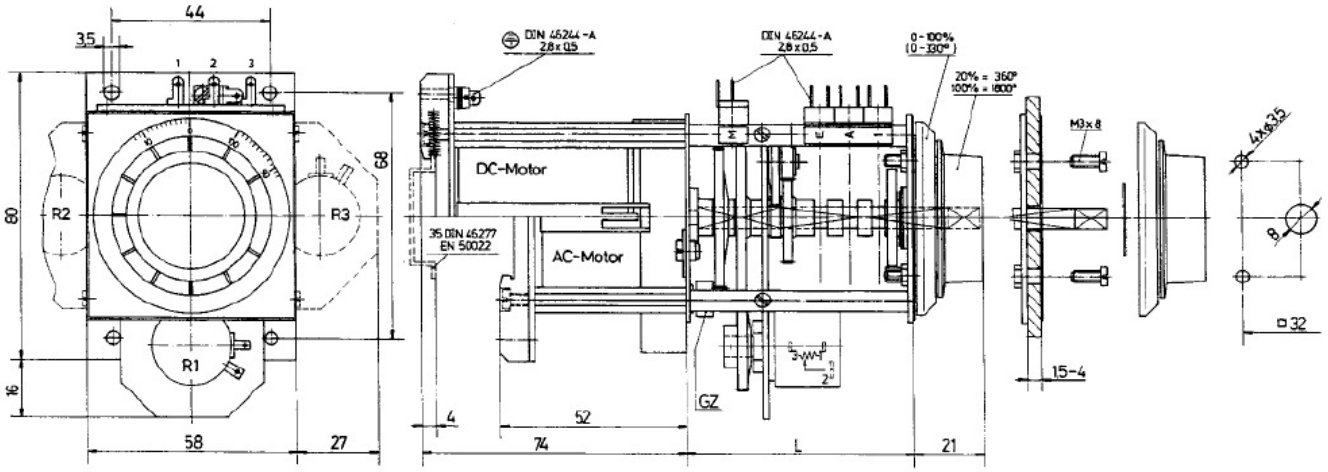
Supply voltage:	20...26 V DC (specifications apply to 24V)
Power consumption	max. 500mA
Input signal:	0-10V
Output:	0-10V
Entrance isolation	1kV
Position accuracy:	0.25% typical
Ramp-up time:	10 seconds to 120 seconds
Minimum Setting:	0% to 25%
Maximum setting:	52% to 100%



Connection diagram:



Reference drawing in mm



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Order code

MPRZ **910 x. x x. x x x**

910 MPRZ

BAUGRÖSSE

0	0 Switches
4	Size 4 - 2 Switches (KS25B4), 55mm length, endswitches adjustable (NK4101/20°), 0 user contact free programmable (NK4201) no program key (PSN) not necessary
5	Size 5 - 3 Switches (KS25B4), 63mm length, 2 endswitches adjustable (NK4101/20°), 1 user contact free programmable (NK4201) 1 program key (PSN)
6	Size 6 - 4 Switches (KS25B4), 71mm length, 2 endswitches adjustable (NK4101/20°), 2 user contact free programmable (NK4201) 1 program key (PSN)
7	Size 7 - 5 Switches (KS25B4), 79mm length, 2 endswitches adjustable (NK4101/20°), 3 user contact free programmable (NK4201) 1 program key (PSN)
9	Size 9 - 6 Switches (KS25B4), 95mm length, 2 endswitches adjustable (NK4101/20°), 4 user contact free programmable (NK4201) 1 program key (PSN

CYCLE TIME

1	10 sec
2	15 sec
3	20 sec
4	30 sec
5	45 sec
6	60 sec
7	75 sec
8	90 sec
9	180 sec

MOTOR POWER (AC/DC) 50Hz

1	C-Motor AC 24V CW
2	C-Motor AC 48V CW / CCW
3	C-Motor AC 110V CW / CCW
4	C-Motor AC 220V CW / CCW
5	G1-Motor DC 24V (+- 0.1) CW / CCW
6	G2-Motor DC 12V (+- 0.1) CW / CCW
	60Hz frequency on request

RESISTANCE POTENTIOMETER 1 DPZ

0	no potentiometer
1	500 Ohm
2	1 kOhm
3	2 kOhm
4	5 kOhm
5	20 kOhm
6	-
7	10 kOhm
8	100 kOhm
9	-

RESISTANCE POTENTIOMETER 2 DPZ

0	no potentiometer
1	500 Ohm
2	1 kOhm
3	2 kOhm
4	5 kOhm
5	20 kOhm
6	-
7	10 kOhm
8	100 kOhm
9	-

QUICK STOPPER AND CONTROL ELECTRONIC FOR DC-MOTORS

0	no stop/drive unit
1	PRSG.2 Control unit Stop and Switch E and A
2	PSG.2 stopper unit for DC Motors - two switches
3	PRSG.3 Control unit Stop and Switch E and A + 1
4	PSG.3 stopper unit for DC Motors - three switches
5	MR265 4-20mA Sensor output 2 wire
6	MR265 4-20mA Current interface 4 wire, GND Power and two Sensor
7	MR267 4-20mA Current interface input module isolated
8	MR267 0-10V Voltage Interface input module isolated

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10 Turn-Motorized potentiometer drive
10 Gang-Motorpotentiometerantrieb

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Serie MPZ

Order key

MPZ41 / MPRZ41	04	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:

4 -->Size
55 mm -->Dimension (L)
04 = 2 Switches
2 Adjustable limit switches (NK4101/20°) + 0 Program channels free setting (NK4201)

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

9 -->Size
95 mm -->Dimension (L)
09 = 6 Switches
2 Adjustable limit switches (NK4101/20°) + 4 Program channels free setting (NK4201)
1 Program key (PSN)

Cycle times (sec.):

1 = 20s **2** = 30s **3** = 45s
4 = 60s **5** = 90s **6** = 120s **7** = 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

10-Turn-Precision wire wound potentiometer (Type DPZ, 2W): Resistance

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

10-Turn-Precision wire wound potentiometer (Type DPZ, 2W): Resistance

8 = 2.5KΩ **9** = 20KΩ **10** = 50KΩ

Wire-wound potentiometer: Resistance

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

Ex.: MPZ4104-7-G2-1094 — **meant for the potentiometer choice: R1=50KΩ, R2=20KΩ, R3=1KΩ**

Special products will be produced under a new article number.

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