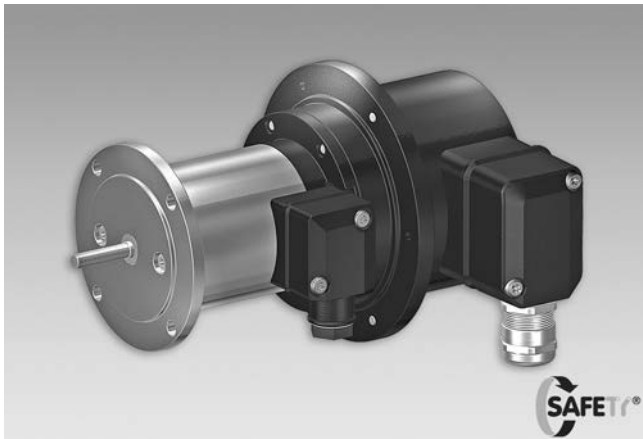


# Combination

## Tachogenerator with integrated centrifugal switch

### Solid shaft $\varnothing 6$ mm with flange

TDP 0,09 + FSL



TDP 0,09 + FSL

#### Features

- Low response time
- Open circuit voltage 10...60 mV per rpm
- Solid shaft  $\varnothing 6$  mm with flange
- High signal quality due to patented LongLife technology
- Mechanical speed monitoring based on centrifugal force

#### Technical data - electrical ratings

Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE

#### Technical data - electrical ratings (tachogenerator)

Reversal tolerance	$\leq 0.1$ %
Linearity tolerance	$\leq 0.15$ %
Temperature coefficient	$\pm 0.05$ %/K (open-circuit)
Isolation class	B
Calibration tolerance	$\pm 3$ %
Climatic test	Humid heat, constant (IEC 60068-2-3, Ca)
Performance	1.2 W (speed $\geq 3000$ rpm)
Armature-circuit time-constant	$< 25$ $\mu$ s
Open-circuit voltage	10...60 mV per rpm

#### Technical data - electrical ratings (centrifugal switch)

Range of switching speed (ns)	850...4500 rpm ( $\Delta n = 2$ rpm/s)
Switching accuracy	$\pm 4$ % ( $\Delta n = 2$ rpm/s); = +20 % ( $\Delta n = 1500$ rpm/s)
Switching deviation	$\leq 3$ % (cw-ccw rotation)
Switching hysteresis	$\sim 40$ % of switching speed
Switching outputs	1 output, speed control
Output switching capacity	$\leq 6$ A / 230 VAC $\leq 1$ A / 125 VDC
Minimum switching current	50 mA

#### Technical data - mechanical design

Size (flange)	$\varnothing 85$ mm
Shaft type	$\varnothing 6$ mm solid shaft
Admitted shaft load	$\leq 40$ N axial $\leq 60$ N radial
Protection DIN EN 60529	IP 56
Speed (n)	$\leq 1.25 \cdot ns$
Range of switching speed (ns)	850...4500 rpm ( $\Delta n = 2$ rpm/s)
Torque	1 Ncm
Rotor moment of inertia	0.5 kgcm <sup>2</sup>
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+130 °C
Resistance	IEC 60068-2-6 Vibration 5 g, 10-2000 Hz IEC 60068-2-27 Shock 150 g, 1 ms
Connection	2x terminal box
Weight approx.	1.6 kg

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### Solid shaft ø6 mm with flange

**TDP 0,09 + FSL**

**Part number**

**Tachogenerator with centrifugal switch**

TDP0,09 LT-  + FSL

- |   |   |
|---|---|
| <p>Switching speed (ns)</p> <p>6 850...949 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>5 950...1099 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>4 1100...1299 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>3 1300...1799 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>2 1800...2499 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>1 2500...4500 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>Open-circuit voltage</p> <p>1 10 mV per rpm</p> <p>2 20 mV per rpm</p> <p>7 30 mV per rpm (not available for TDPZ)</p> <p>3 40 mV per rpm</p> <p>8 50 mV per rpm (not available for TDPZ)</p> <p>9 60 mV per rpm (not available for TDPZ)</p> | <p>Switching speed (ns)</p> <p>6 850...949 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>5 950...1099 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>4 1100...1299 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>3 1300...1799 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>2 1800...2499 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>1 2500...4500 rpm (<math>\Delta n = 2</math> rpm/s)*</p> <p>Open-circuit voltage</p> <p>1 10 mV per rpm</p> <p>2 20 mV per rpm</p> <p>7 30 mV per rpm (not available for TDPZ)</p> <p>3 40 mV per rpm</p> <p>8 50 mV per rpm (not available for TDPZ)</p> <p>9 60 mV per rpm (not available for TDPZ)</p> |
|---|---|

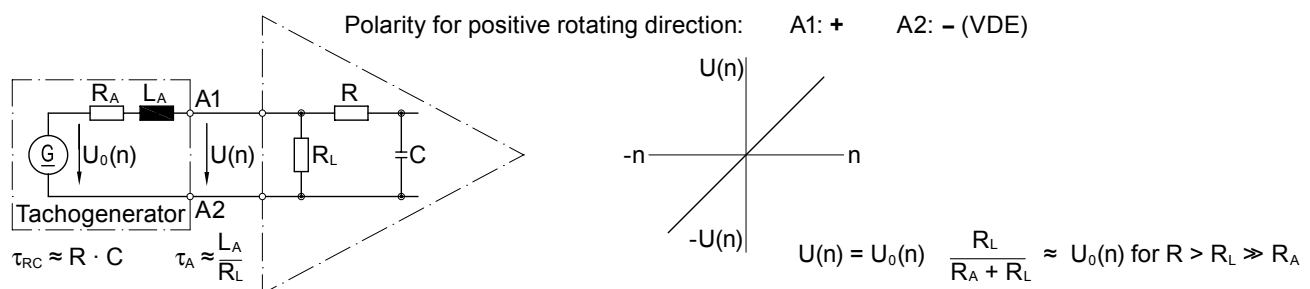
\* Please specify the exact switching speed in addition to the part number (factory setting).

**Data according to type**

Type	Off-load voltage $U_0$ [mV/rpm]	Minimum load required depending on speed range [rpm]			Maximum operating speed $n_{max}$ [rpm]	Armature resistance $R_A$ (20°C) [Ω]	Armature inductance $L_A$ [mH]
		0-3000 $R_L$ [kΩ]	0-6000 $R_L$ [kΩ]	0- $n_{max}$ $R_L$ [kΩ]			
TDP0,09LT-1	10	$\geq 0.75$	$\geq 0.3$	$\geq 8.5$	10000	20	18
TDP0,09LT-2	20	$\geq 3$	$\geq 12$	$\geq 34$	10000	82	75
TDP0,09LT-7	30	$\geq 6.8$	$\geq 27$	$\geq 75$	10000	190	167
TDP0,09LT-3	40	$\geq 12$	$\geq 48$	$\geq 134$	10000	320	300
TDP0,09LT-8	50	$\geq 19$	$\geq 75$	$\geq 134$	8000	492	465
TDP0,09LT-9	60	$\geq 27$	$\geq 108$	$\geq 134$	6700	750	675

Superimposed ripple (for  $\tau_{RC} = 0.7$  ms):       $\leq 0.55\%$  (peak-peak)       $\leq 0.25\%$  (rms)

**Replacement switching diagram**



# Combination

Tachogenerator with integrated centrifugal switch

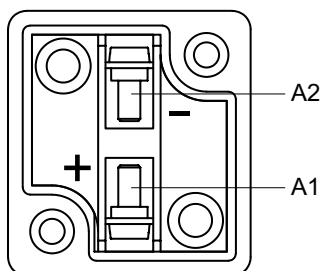
Solid shaft  $\varnothing 6$  mm with flange

## TDP 0,09 + FSL

### Terminal assignment

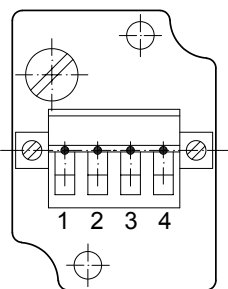
**View A** - Connecting terminal TDP 0,09

Polarity for positive direction of rotation

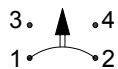


### View B

Connecting terminal mechanical centrifugal switch FSL



Make contact



Break contact

### Accessories

Carbon brushes

### Mounting accessories

K 35 Spring washer coupling  
for solid shaft  $\varnothing 6 \dots 12$  mm

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#### Dimensions

