

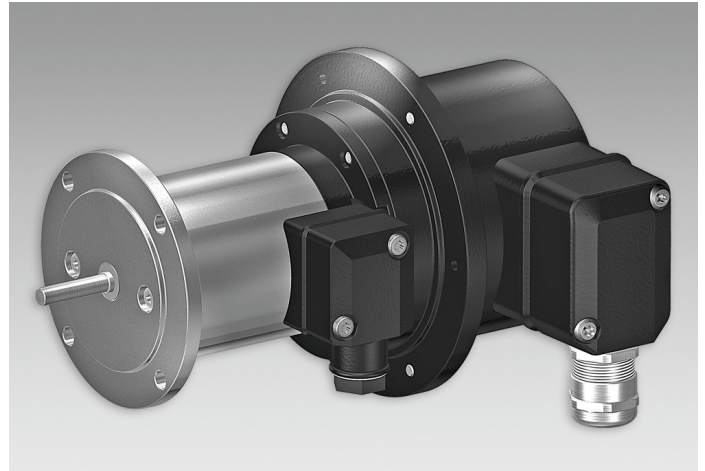
## TDP 0,09 + FSL

Tachogenerator with integrated centrifugal switch

Solid shaft ø6 mm with flange

### Overview

- Low response time
- Open circuit voltage 10...60 mV per rpm
- Solid shaft ø6 mm with flange
- High signal quality due to patented LongLife technology
- Mechanical speed monitoring based on centrifugal force



### Technical data

#### Technical data - electrical ratings

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

#### 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	40 % of switching speed
Switching outputs	1 output, speed control
Output switching capacity	$\leq 6$ A / 230 VAC $\leq 1$ A / 125 VDC (EAC: $< 50$ VAC / 75 VDC)
Minimum switching current	50 mA

#### 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)

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

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 - mechanical design

Size (flange)	ø85 mm
Shaft type	ø6 mm solid shaft
Admitted shaft load	$\leq 40$ N axial $\leq 60$ N radial
Protection 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>
Material	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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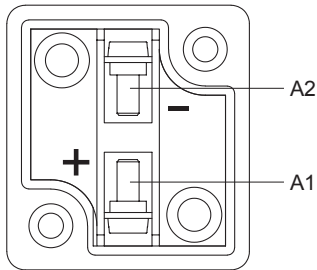
### General information

The constructive design of the centrifugal switch is its use as a switch with positive break function. It must not be used as a continuous switch (switching cycles greater than 500 during service life).

### Terminal assignment

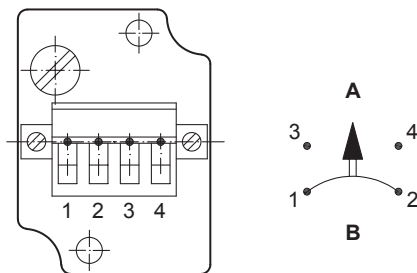
#### View A (see dimension)

Connecting terminal tachogenerator  
Polarity for positive rotating direction



#### View B (see dimension)

Connecting terminal centrifugal switch



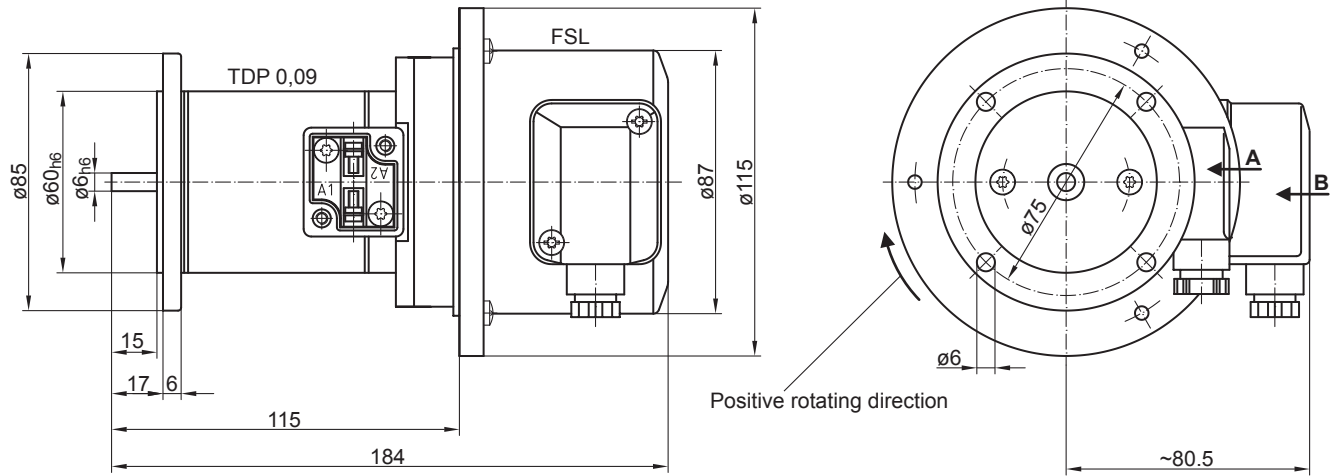
**A** = make contact, **B** = break contact

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### Dimensions



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### Ordering reference

		TDP0,09 LT-	#	####
<b>Product</b>				
Tachogenerator + centrifugal switch		TDP0,09 LT-		
<b>Open-circuit voltage</b>				
10 mV per rpm			1	
20 mV per rpm			2	
30 mV per rpm			7	
40 mV per rpm			3	
50 mV per rpm			8	
60 mV per rpm			9	
<b>Switching speed (ns)</b>				
850...949 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL6
950...1099 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL5
1100...1299 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL4
1300...1799 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL3
1800...2499 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL2
2500...4500 rpm ( $\Delta n = 2$ rpm/s) <sup>(1)</sup>				+FSL1

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

### Data according to type

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

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

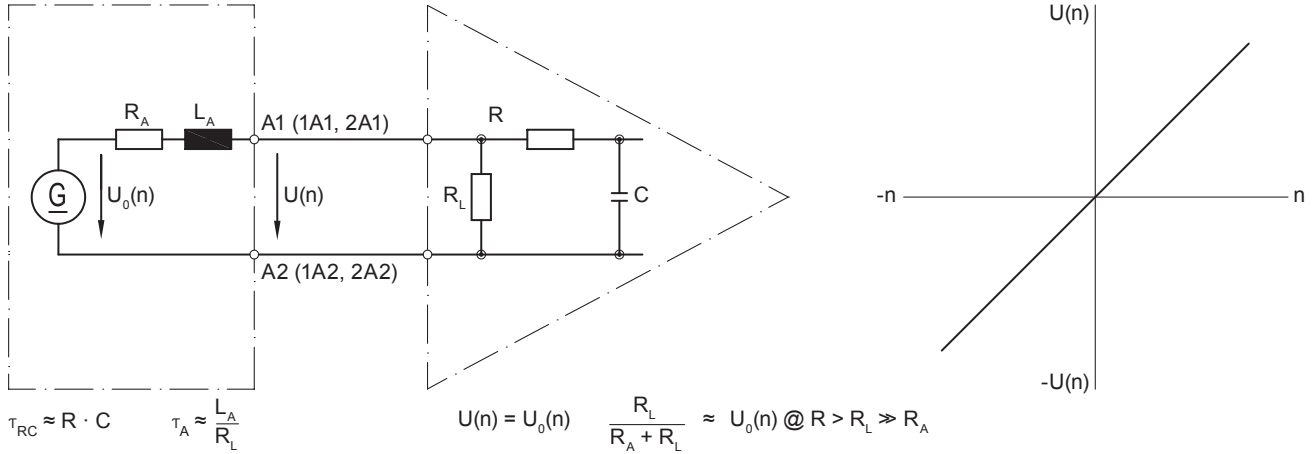
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### Replacement switching diagram

Tachogenerator



Polarity for positive rotating direction (see dimension) / A1 (1A1, 2A1): + (VDE) / A2 (1A2, 2A2): - (VDE)

### Accessories

#### Mounting accessories

Spring disk coupling K 35 (shaft ø6...12 mm)