

TDP 0,09 + FSL

Tachogenerator with integrated centrifugal switch

Solid shaft $\varnothing 6$ mm with flange

Overview

- 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

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	± 4 % ($\Delta n = 2$ rpm/s); 20 % ($\Delta n = 1500$ rpm/s)
Switching deviation	≤ 3 % (cw-ccw rotation)
Switching hysteresis	40 % of switching speed
Switching outputs	1 output, speed control
Output switching capacity	≤ 6 A / 230 VAC ≤ 1 A / 125 VDC (EAC: < 50 VAC / 75 VDC)
Minimum switching current	50 mA

Technical data - electrical ratings (tachogenerator)

Reversal tolerance	≤ 0.1 %
Linearity tolerance	≤ 0.15 %
Temperature coefficient	± 0.05 %/K (open-circuit)
Isolation class	B
Calibration tolerance	± 3 %
Climatic test	Humid heat, constant (IEC 60068-2-3, Ca)

Technical data - electrical ratings (tachogenerator)

Performance	1.2 W (speed ≥ 3000 rpm)
Armature-circuit time-constant	< 25 μ s
Open-circuit voltage	10...60 mV per rpm

Technical data - mechanical design

Size (flange)	$\varnothing 85$ mm
Shaft type	$\varnothing 6$ mm solid shaft
Admitted shaft load	≤ 40 N axial ≤ 60 N radial
Protection EN 60529	IP 56
Speed (n)	$\leq 1.25 \cdot n_s$
Range of switching speed (ns)	850...4500 rpm ($\Delta n = 2$ rpm/s)
Torque	1 Ncm
Rotor moment of inertia	0.5 kgcm ²
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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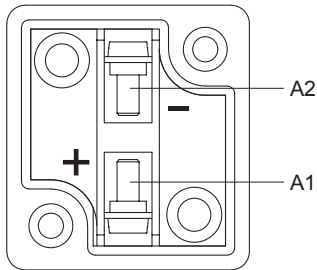
General information

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

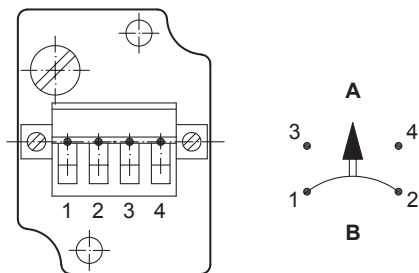
View A (see dimension)

Connecting terminal tachogenerator
Polarity for positive rotating direction



View B (see dimension)

Connecting terminal centrifugal switch



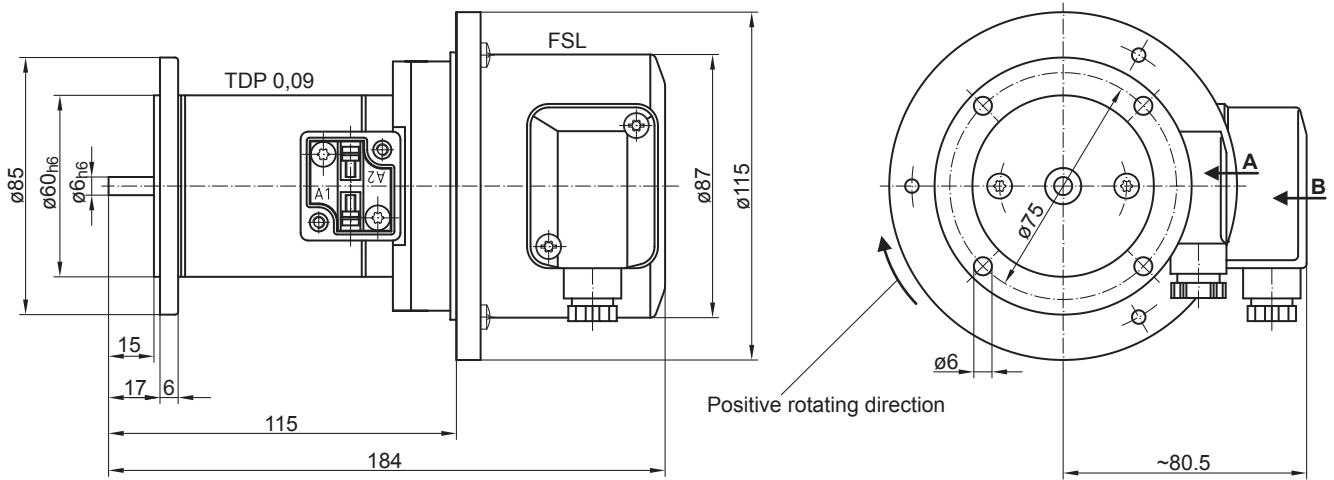
A = make contact, **B** = break contact

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Dimensions



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Ordering reference
TDP0,09 LT- # #####
Product

Tachogenerator + centrifugal switch

TDP0,09 LT-

Open-circuit voltage

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

Switching speed (ns)

850...949 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL6
950...1099 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL5
1100...1299 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL4
1300...1799 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL3
1800...2499 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL2
2500...4500 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾	+FSL1

(1) 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 [k Ω]	0-6000 R_L [k Ω]	0- n_{max} R_L [k Ω]			
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

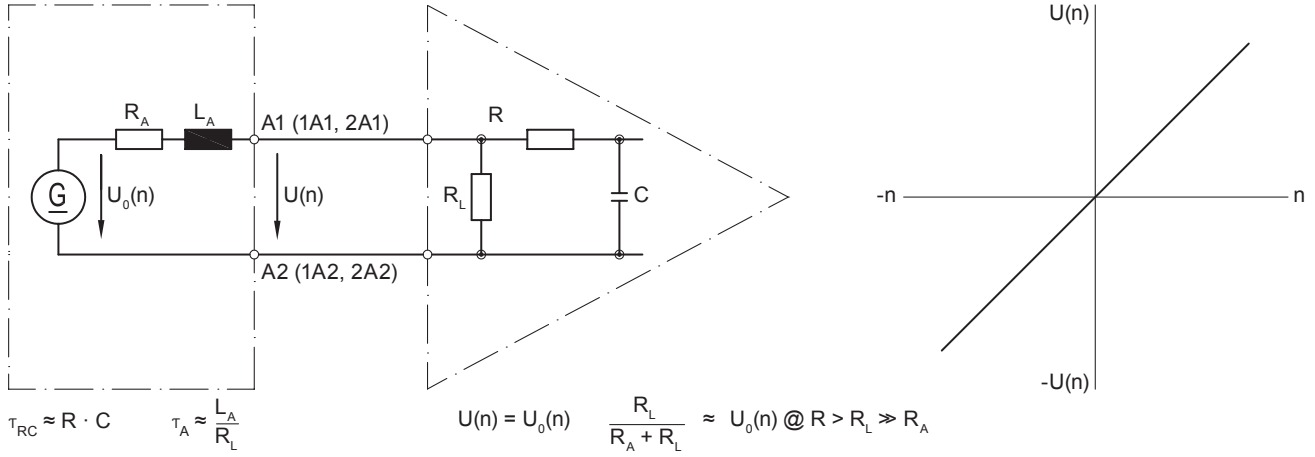
 Superimposed ripple (for $\tau_{RC} = 0.7$ ms): $\leq 0.55\%$ (peak-peak) $\leq 0.25\%$ (rms)

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Equivalent circuit 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 $\varnothing 6 \dots 12$ mm)