

Combination

Tachogenerator with integrated centrifugal switch

Solid shaft with EURO flange B10 or housing foot B3

TDP 0,2 + FSL, TDPZ 0,2 + FSL



TDP 0,2 + FSL

Features

- Low response time
- Open circuit voltage 10...150 mV per rpm
- EURO flange B10 or housing foot B3
- Redundant tachogenerator output (TDPZ)
- High signal quality due to patented LongLife technology
- Recognition of sense of rotation possible via control
- Mechanical speed monitoring based on centrifugal force

Technical data - electrical ratings

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

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	±1 %
Climatic test	Humid heat, constant (IEC 60068-2-3, Ca)
Performance	TDP: 12 W (speed ≥3000 rpm) TDPZ: 2x 3 W (speed ≥3000 rpm)
Armature-circuit time-constant	<75 μs (TDP) <40 μs (TDPZ)
Open-circuit voltage	TDP: 10...150 mV per rpm TDPZ: 20...100 mV per rpm

Technical data - electrical ratings (centrifugal switch)

Switching accuracy	±4 % (Δn = 2 rpm/s); = +20 % (Δn = 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
Minimum switching current	50 mA

Technical data - mechanical design

Size (flange)	ø115 mm
Shaft type	ø11 mm solid shaft
Admitted shaft load	≤60 N axial ≤80 N radial
Flange	EURO flange B10 Housing foot B3
Protection DIN EN 60529	IP 55
Speed (n)	≤1.25 · ns
Range of switching speed (ns)	850...4500 rpm (Δn = 2 rpm/s)
Torque	1.5 Ncm
Rotor moment of inertia	1.4 kgcm ² (TDP) 1.5 kgcm ² (TDPZ)
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.	3.1 kg (TDP), 3.5 kg (TDPZ)
Approval	CE

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Part number

TDP

	0,2 LT-			55 + FSL	
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Switching speed (ns)

- 6 850...949 rpm ($\Delta n = 2$ rpm/s)*
- 5 950...1099 rpm ($\Delta n = 2$ rpm/s)*
- 4 1100...1299 rpm ($\Delta n = 2$ rpm/s)*
- 3 1300...1799 rpm ($\Delta n = 2$ rpm/s)*
- 2 1800...2499 rpm ($\Delta n = 2$ rpm/s)*
- 1 2500...4500 rpm ($\Delta n = 2$ rpm/s)*

Mounting type

- B10 EURO flange B10
- B3 Housing foot B3

Open-circuit voltage

- 6 10 mV per rpm (not available for TDPZ)
- 7 20 mV per rpm
- 10 30 mV per rpm (not available for TDPZ)
- 5 40 mV per rpm
- 4 60 mV per rpm
- 3 100 mV per rpm
- 1 150 mV per rpm (not available for TDPZ)

Design

- Tachogenerator
- Z Twin tachogenerator

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

Data according to type

Type	Open-circuit voltage U_o [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]			
TDP0,2 LT-6	10	≥ 0.1	≥ 0.3	≥ 0.9	10000	3	6
TDP0,2 LT-7	20	≥ 0.3	≥ 1.2	≥ 3.3	10000	11	23
TDP0,2 LT-10	30	≥ 0.7	≥ 2.7	≥ 7.5	10000	26	50
TDP0,2 LT-5	40	≥ 1.2	≥ 5	≥ 13.5	10000	47	90
TDP0,2 LT-4	60	≥ 2.7	≥ 11	≥ 30	10000	99	200
TDP0,2 LT-3	100	≥ 7.5	≥ 30	≥ 30	6000	271	550
TDP0,2 LT-1	150	≥ 16	---	≥ 30	4000	630	1260
Twin tachogenerator with redundant output (The data refer to each of the two tachogenerator outputs)							
TDPZ0,2 LT-7	20	≥ 1.2	≥ 4.8	≥ 14	10000	19	45
TDPZ0,2 LT-5	40	≥ 4.8	≥ 20	≥ 54	10000	70	170
TDPZ0,2 LT-4	60	≥ 11	≥ 44	≥ 120	10000	160	390
TDPZ0,2 LT-3	100	≥ 30	≥ 120	---	6000	445	1080
Superimposed ripple (for $\tau_{RC} = 0.7$ ms):		$\leq 0.5\%$ (peak-peak)			$\leq 0.2\%$ (rms)		

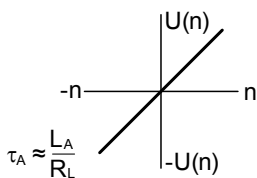
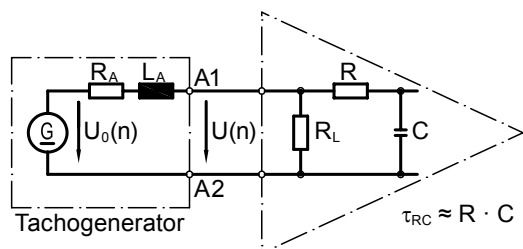
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Replacement switching diagram



Polarity for positive rotating direction:

A1 (TDPZ: 1A1, 2A1): + (VDE)

A2 (TDPZ: 1A2, 2A2): - (VDE)

$$U(n) = U_0(n) \frac{R_L}{R_A + R_L} \approx U_0(n) \text{ for } R > R_L \gg R_A$$

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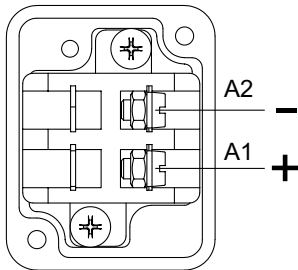
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Terminal assignment

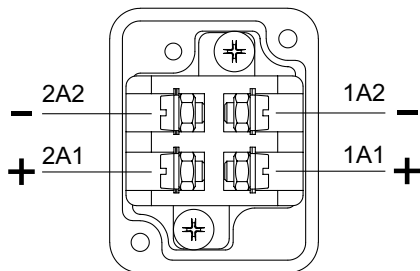
View A - Connecting terminal TDP 0,2

Polarity for positive direction of rotation



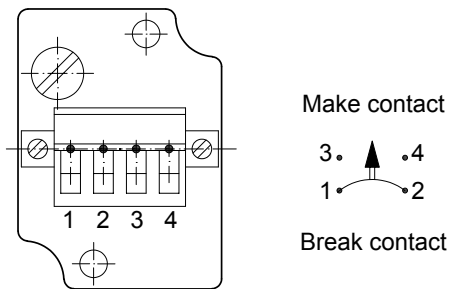
View A - Connecting terminal TDPZ 0,2

Polarity for positive direction of rotation



View B

Connecting terminal mechanical centrifugal switch FSL



Accessories

Carbon brushes

Mounting accessories

K 35	Spring washer coupling for solid shaft $\varnothing 6...12$ mm
K 50	Spring washer coupling for solid shaft $\varnothing 11...16$ mm
K 60	Spring washer coupling for solid shaft $\varnothing 11...22$ mm

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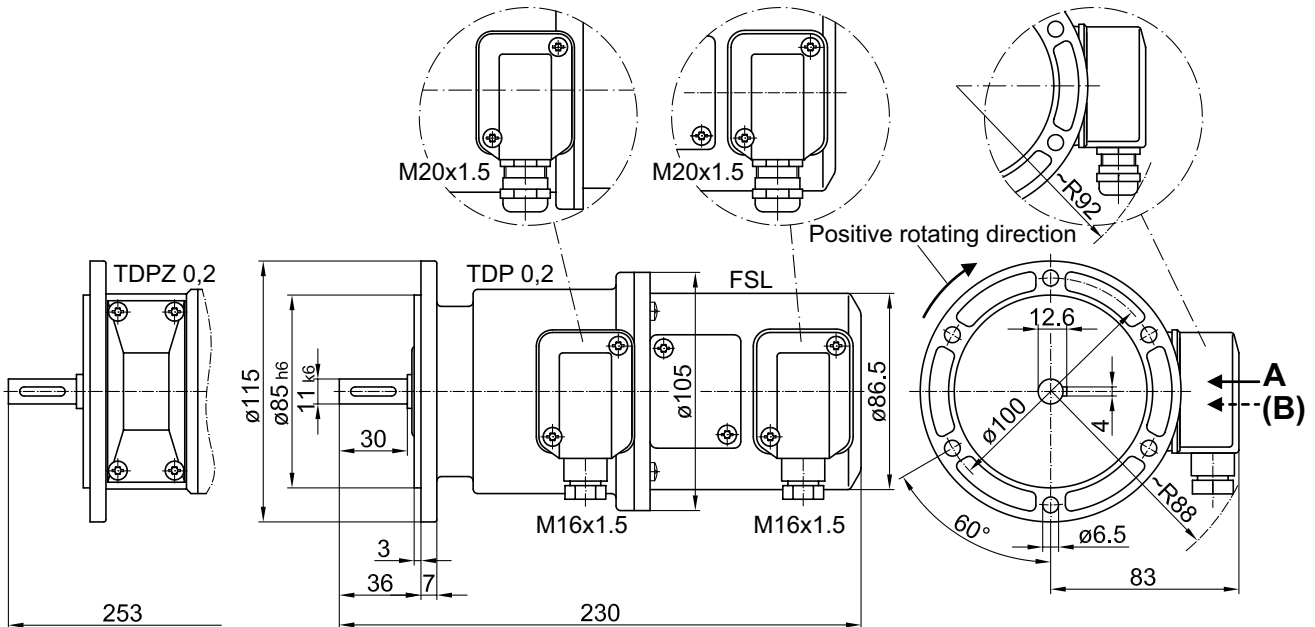
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Dimensions

EURO flange B10



Housing foot B3

