Combination

Tachogenerator with integrated centrifugal switch

Solid shaft with EURO flange B10

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

TDP 0,2 + FSL

Features

- **Low response time**
- **Open circuit voltage 10...150 mV per rpm**
- **Redundant tachogenerator output (TDPZ)**
- **EURO-flange B10 / solid shaft ø11 mm**
- **High signal quality due to patented LongLife technology**
- **Recognition of sense of rotation possible via control**
- **Mechanical speed monitoring based on centrifugal force**

Optional

- **Housing foot (B3)**

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)
TDP 0,2 + FSL	
Performance	12 W (speed ≥3000 rpm)
Armature-circuit time-constant	<75 µs
Open-circuit voltage	10...150 mV per rpm
TDPZ 0,2 + FSL	
Performance	2x 3 W (speed ≥3000 rpm)
Armature-circuit time-constant	<40 µs
Open-circuit voltage	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 cw-ccw rotation	≤3 %
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
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
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
Approval	CE
TDP 0,2 + FSL	
Rotor moment of inertia	1.4 kgcm²
Weight approx.	3.1 kg
TDPZ 0,2 + FSL	
Rotor moment of inertia	1.5 kgcm²
Weight approx.	3.5 kg

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

Part number

Tachogenerator with centrifugal switch

TDP0,2 LT- [ ] **+ FSL** [ ]

Switching speed (ns)

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

Open-circuit voltage

6	10 mV per rpm
7	20 mV per rpm
10	30 mV per rpm
5	40 mV per rpm
4	60 mV per rpm
3	100 mV per rpm
1	150 mV per rpm

Twin tachogenerator with centrifugal switch

TDPZ0,2 LT- [ ] **+ FSL** [ ]

Switching speed (ns)

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

Open-circuit voltage

7	20 mV per rpm
5	40 mV per rpm
4	60 mV per rpm
3	100 mV per rpm

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

Data according to type

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

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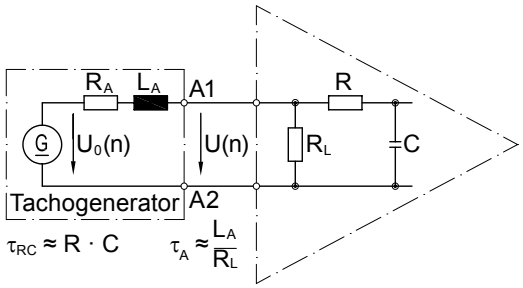
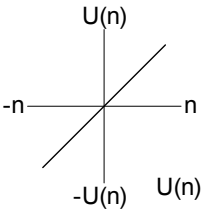
Solid shaft with EURO flange B10

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

Replacement switching diagram



Polarity for positive rotating direction: A1 (TDPZ: 1A1, 2A1): **+** (VDE)
A2 (TDPZ: 1A2, 2A2): **–** (VDE)

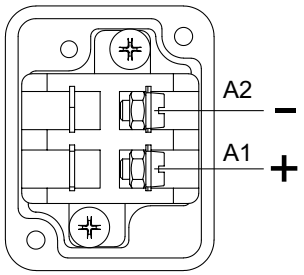


$U(n) = U_0(n) \frac{R_L}{R_A + R_L} \approx U_0(n)$ for $R > R_L \gg R_A$

Terminal assignment

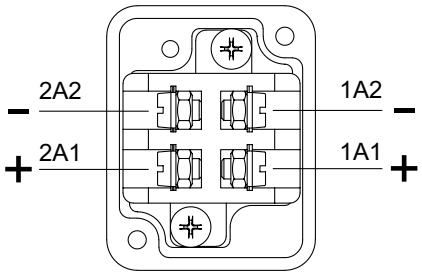
View A - Connecting terminal TDP 0,2

Polarity for positive direction of rotation



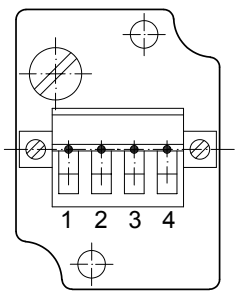
View A - Connecting terminal TDPZ 0,2

Polarity for positive direction of rotation

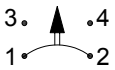


View B

Connecting terminal mechanical centrifugal switch FSL



Make contact



Break contact

Accessories

Carbon brushes

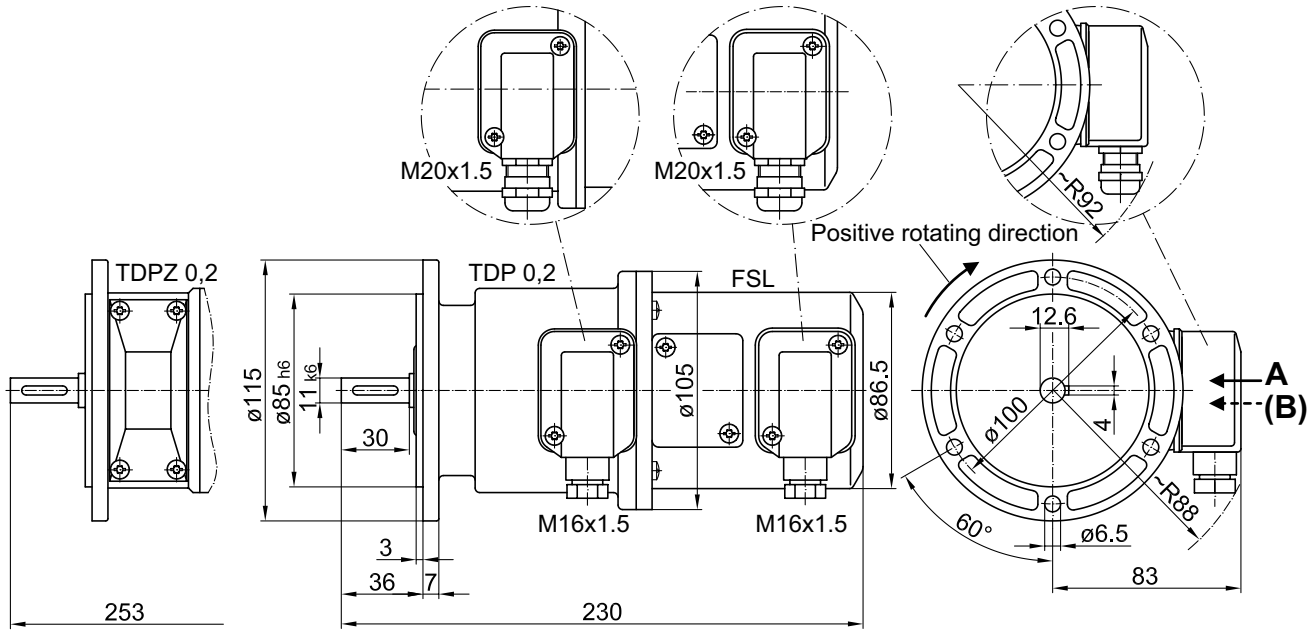
Mounting accessories

K 35	Spring washer coupling for solid shaft ø6...12 mm
K 50	Spring washer coupling for solid shaft ø11...16 mm
K 60	Spring washer coupling for solid shaft ø11...22 mm

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

Dimensions

TDP 0,2 + FSL (TDPZ 0,2 + FSL) - Version with Euro flange (B10)



TDP 0,2 + FSL (TDPZ 0,2 + FSL) - Version with housing foot (B3)