

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

Tachogenerator/twin tachogenerator with integrated centrifugal switch

Solid shaft with EURO flange B10 or housing foot B3

Overview

- 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

Technical data - electrical ratings

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

Technical data - electrical ratings (centrifugal switch)

| | |
|---------------------------|---|
| 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 | ± 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 - 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 EN 60529 | IP 55 |
| Speed (n) | ≤ 1.25 · ns |
| Range of switching speed (ns) | 850...4500 rpm ($\Delta n = 2$ rpm/s) |
| Torque | 1.5 Ncm |
| Rotor moment of inertia | 1.4 kgcm ² (TDP) 1.5 kgcm ² (TDPZ) |
| 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. | 3.1 kg (TDP) 3.5 kg (TDPZ) |
| Approval | CE |

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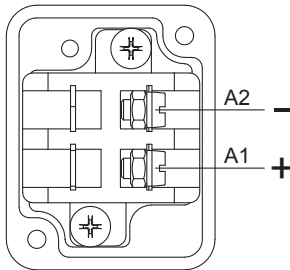
General information

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

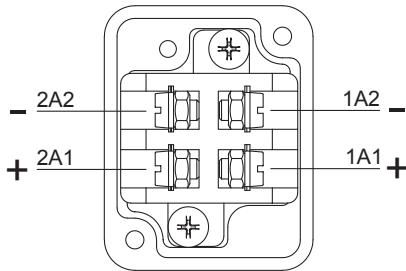
View A (see dimension)

Connecting terminal tachogenerator TDP
Polarity for positive rotating direction



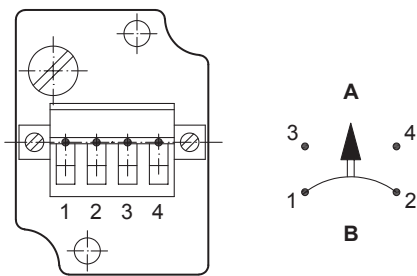
View A (see dimension)

Connecting terminal twin tachogenerator TDPZ
Polarity for positive rotating direction



View B (see dimension)

Connecting terminal centrifugal switch

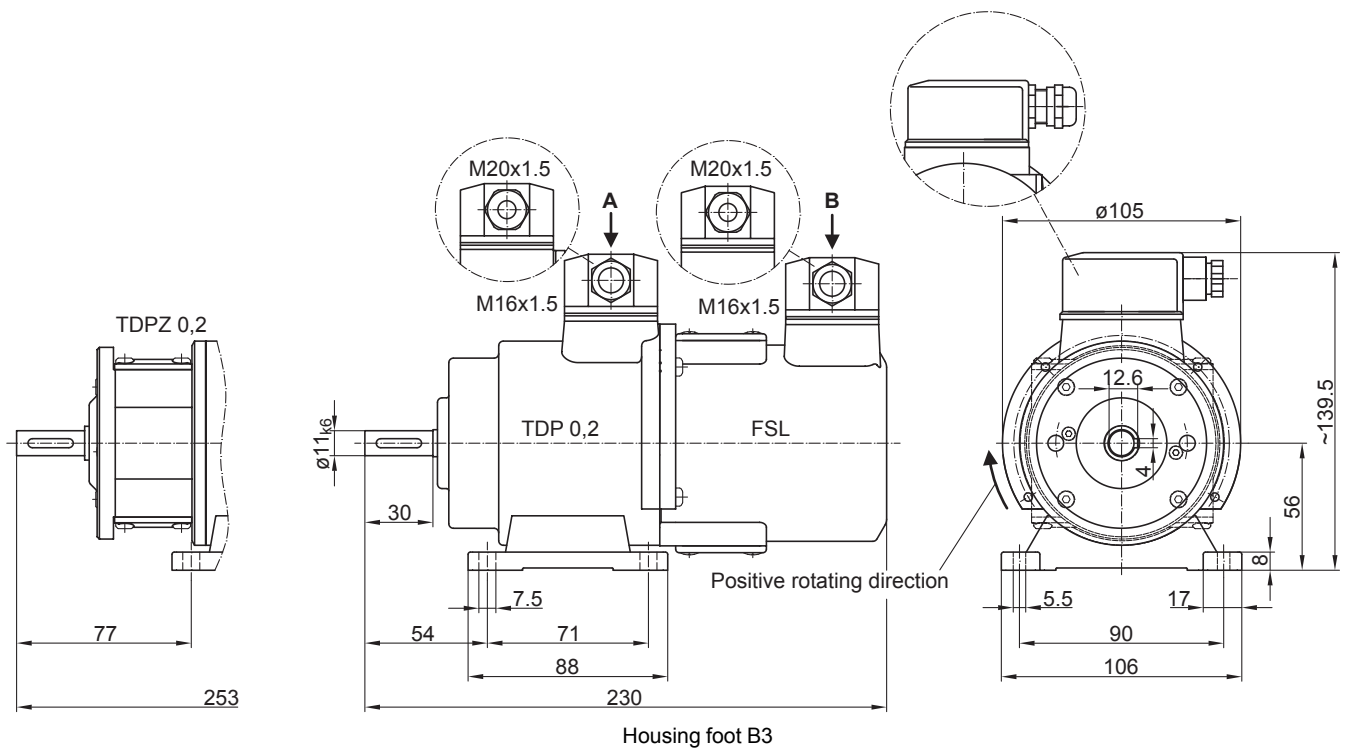
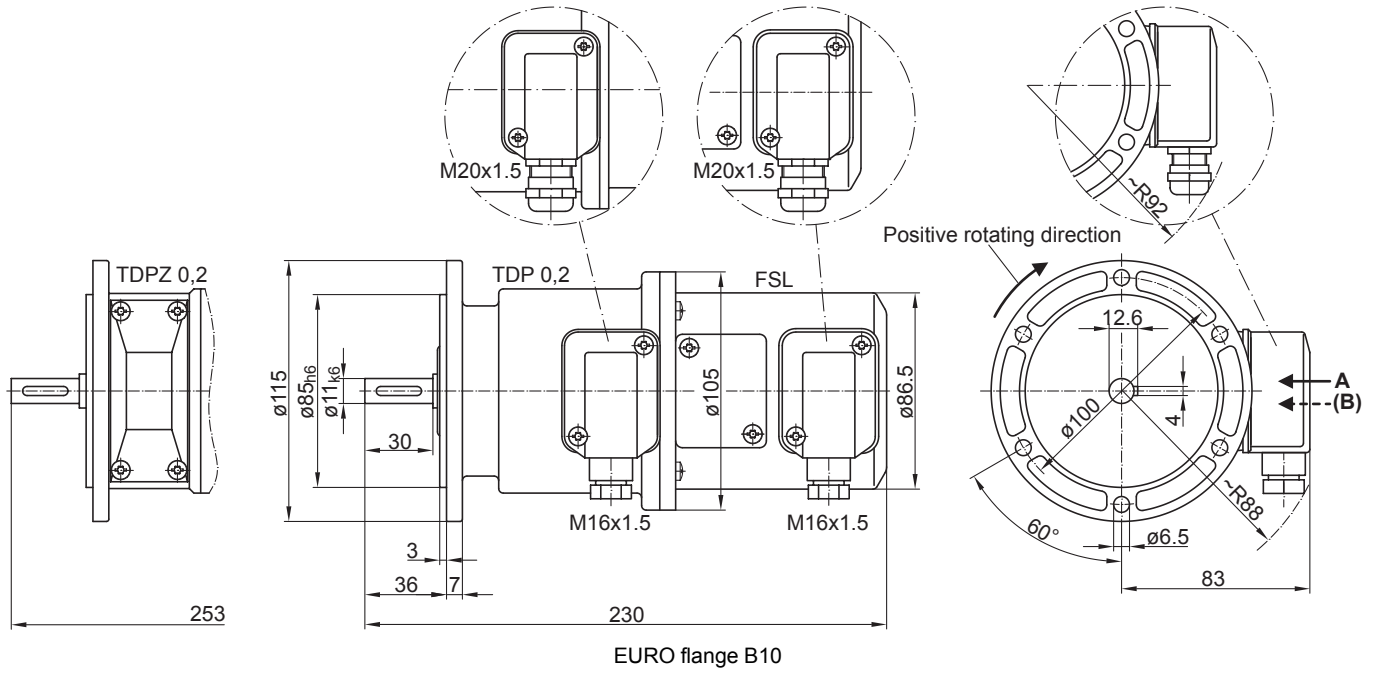


A = make contact, **B** = break contact

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Dimensions



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Ordering reference

| | TDP # | ##### | ##### | + FSL | ##### |
|--|-------|----------|-------|-------|-------|
| Product | TDP | | | | |
| Tachogenerator + centrifugal switch | | | | | |
| Design | | | | | |
| Tachogenerator | | | | | |
| Twin tachogenerator | Z | | | | |
| Open-circuit voltage | | | | | |
| 10 mV per rpm (not available for TDPZ) | | 0,2LT-6 | | | |
| 20 mV per rpm | | 0,2LT-7 | | | |
| 30 mV per rpm | | 0,2LT-10 | | | |
| 40 mV per rpm | | 0,2LT-5 | | | |
| 60 mV per rpm | | 0,2LT-4 | | | |
| 100 mV per rpm | | 0,2LT-3 | | | |
| 150 mV per rpm (not available for TDPZ) | | 0,2LT-1 | | | |
| Mounting type | | | | | |
| EURO flange B10 | | | | B10 | |
| Housing foot B3 | | | | B3 | |
| Version speed switch | | | | | |
| Mechanical centrifugal switch | | | | + FSL | |
| Switching speed (ns) | | | | | |
| 850...949 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 6 ... |
| 950...1099 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 5 ... |
| 1100...1299 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 4 ... |
| 1300...1799 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 3 ... |
| 1800...2499 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 2 ... |
| 2500...4500 rpm ($\Delta n = 2$ rpm/s) ⁽¹⁾ | | | | | 1 ... |

(1) 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 [kΩ] | 0-6000 R _L [kΩ] | 0-n _{max} R _L [kΩ] | | | |
| 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-10 | 30 | ≥2.7 | ≥11 | ≥30 | 10000 | 42 | 103 |
| 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 |

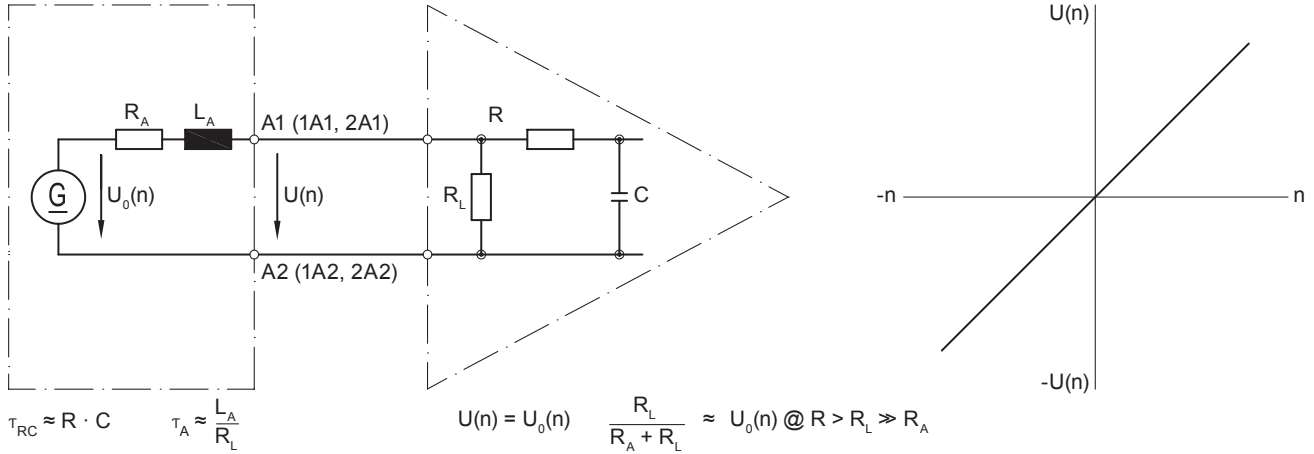
 Superimposed ripple (for τ_{RC} = 0.7 ms): ≤0.5% (peak-peak) ≤0.2% (rms)

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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 $\varnothing 6...12$ mm)
- Spring disk coupling K 50 (shaft $\varnothing 11...16$ mm)
- Spring disk coupling K 60 (shaft $\varnothing 11...22$ mm)