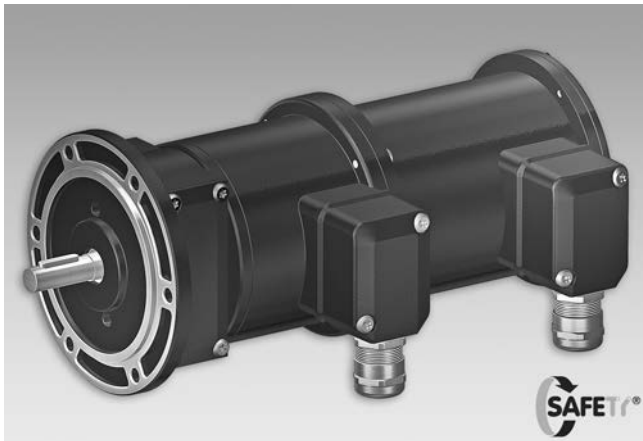


# Combination

Twin tachogenerator with integrated electronic speed switch

Solid shaft with EURO flange B10

TDPZ 0,2 + ESL



TDPZ 0,2 + ESL

## Features

- Low response time
- Open circuit voltage 20...100 mV per rpm
- Redundant tachogenerator output
- High signal quality due to patented LongLife technology
- Recognition of sense of rotation possible via control
- Electronic speed monitoring
- Circuit breaker with up to three selectable threshold speeds

## 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)
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 (speed switches)

Switching accuracy	±4 % (≤1500 rpm) ±2 % (>1500 rpm)
Switching hysteresis	=30 % of switching speed
Switching delay time	≤40 ms

## TDPZ 0,2 + ESL 90

Switching outputs	1 output, speed control
Output switching capacity	≤6 A / 250 VAC ≤1 A / 48 VDC
Minimum switching current	100 mA

## TDPZ 0,2 + ESL 93

Voltage supply	12 VDC ±10 %
Consumption w/o load	≤5 mA
Switching outputs	3 outputs, speed control
Current each output	40 mA (DC)

## 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
Torque	1.5 Ncm
Rotor moment of inertia	1.5 kgcm <sup>2</sup>
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-20...+85 °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.	3.4 kg
Approval	CE

## TDPZ 0,2 + ESL 90

Speed (n)	≤6000 rpm
Range of switching speed (ns)	650...6000 rpm

## TDPZ 0,2 + ESL 93

Speed (n)	≤5000 rpm
Range of switching speed (ns)	200...5000 rpm

# Combination

## Twin tachogenerator with integrated electronic speed switch Solid shaft with EURO flange B10

TDPZ 0,2 + ESL

### Part number

Twin tachogenerator with speed switch ESL 90

TDPZ0,2 LT-    **55 + ESL90**  ...

				Switching speed (ns)
				... 650...6000 rpm
				Mounting type
				B10 EURO flange B10
				B3 Housing foot
				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).

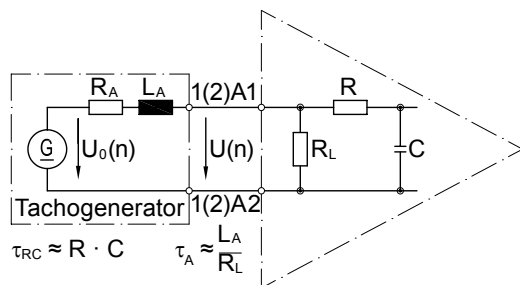
### Data according to type

Type	Open-circuit voltage $U_0$ [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 $R_L$ [kΩ]	0-6000 $R_L$ [kΩ]	0- $n_{max}$ $R_L$ [kΩ]			
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

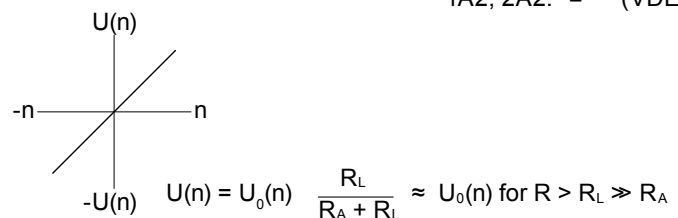
The data refer to each of the two tachogenerator outputs

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

### Replacement switching diagram



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



# Combination

Twin tachogenerator with integrated electronic speed switch

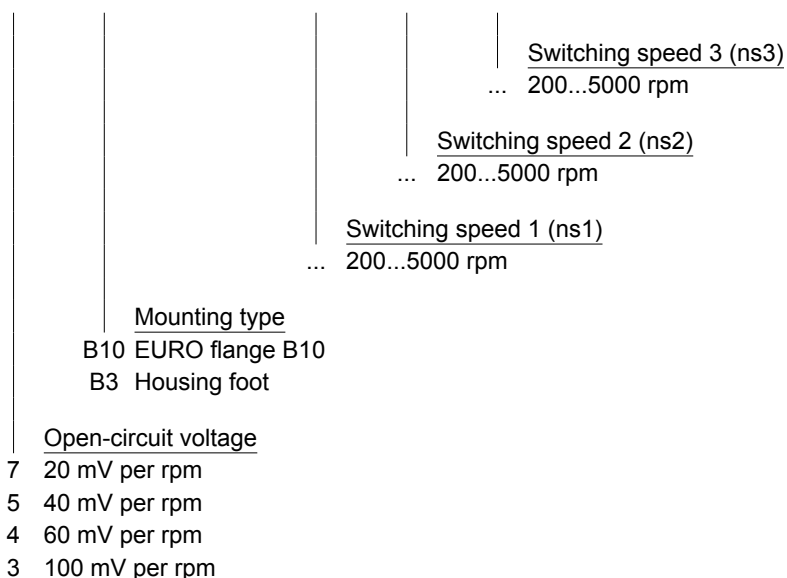
Solid shaft with EURO flange B10

## TDPZ 0,2 + ESL

### Part number

Twin tachogenerator with speed switch ESL 93

TDPZ0,2 LT-    **55 + ESL93**  ...  ...  ...



Please indicate the exact switching rotation speeds (permanent parameter defined at works).

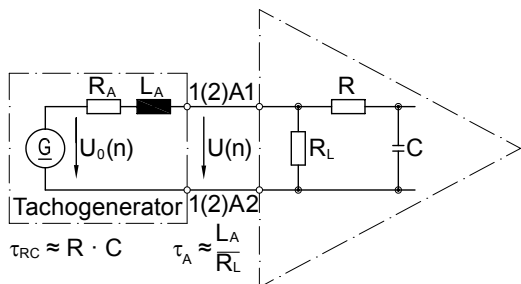
### Data according to type

Type	Open-circuit 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	0-6000	0- $n_{max}$			
		$R_L$ [kΩ]	$R_L$ [kΩ]	$R_L$ [kΩ]			
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

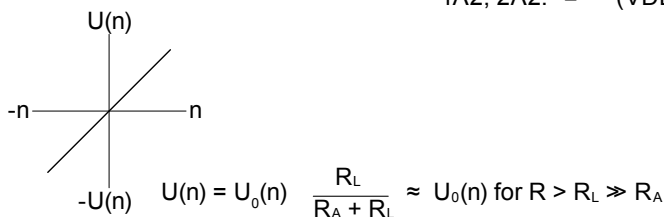
The data refer to each of the two tachogenerator outputs

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

### Replacement switching diagram



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



# Combination

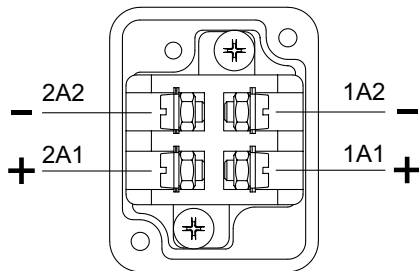
## Twin tachogenerator with integrated electronic speed switch Solid shaft with EURO flange B10

TDPZ 0,2 + ESL

### Terminal assignment

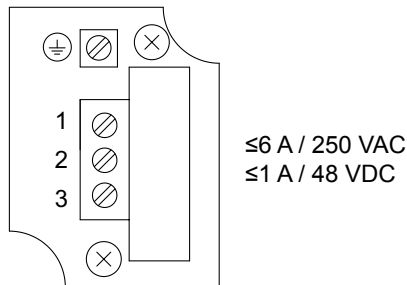
**View A** - Connecting terminal TDPZ 0,2

Polarity for positive direction of rotation



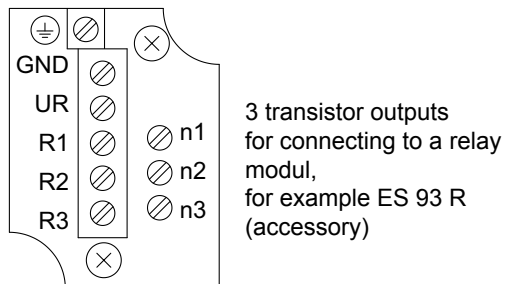
### View B

Connecting terminal electronic speed switch ESL 90



### View B

Connecting terminal electronic speed switch ESL 93



### 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

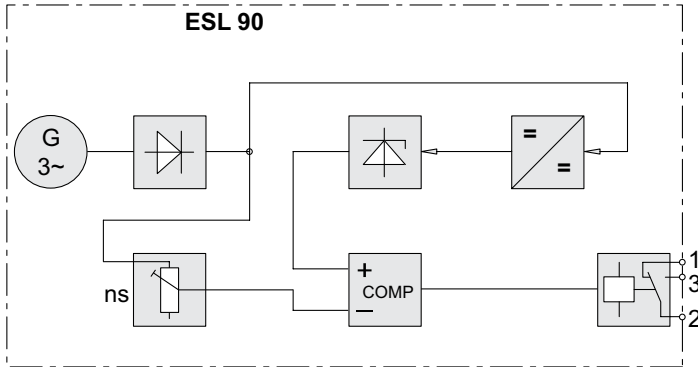
# Combination

Twin tachogenerator with integrated electronic speed switch

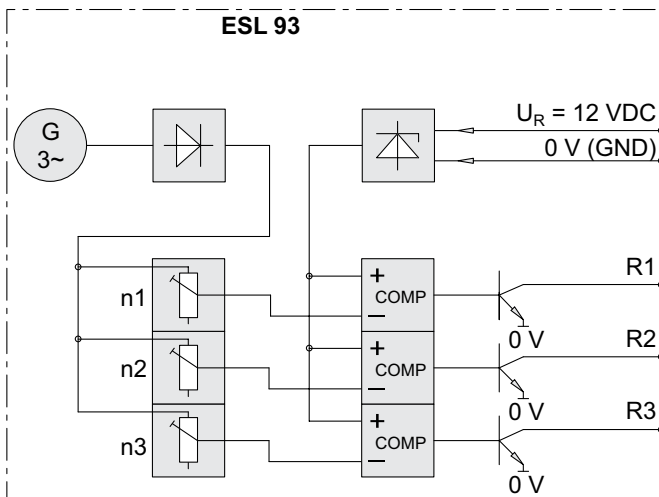
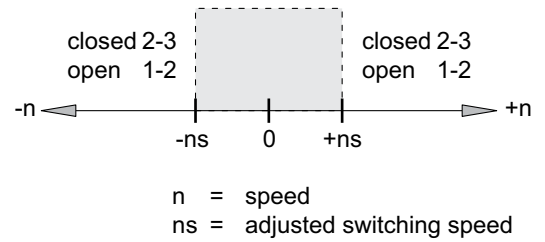
Solid shaft with EURO flange B10

TDPZ 0,2 + ESL

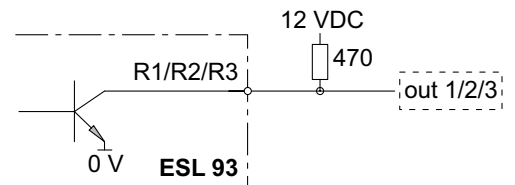
## Block circuit diagram



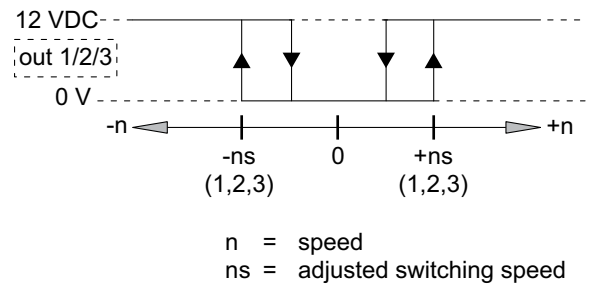
### Switching characteristics



### Recommended output circuit



### Switching characteristics



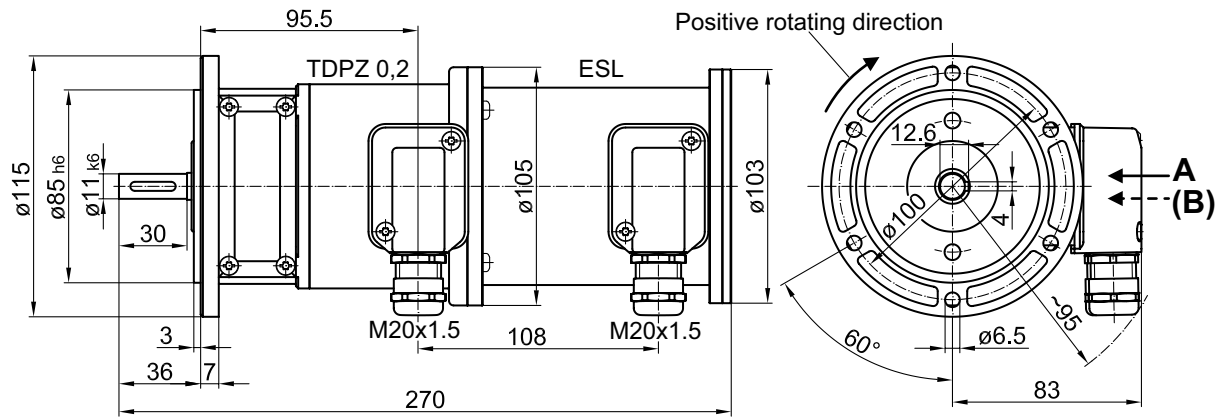
# Combination

## Twin tachogenerator with integrated electronic speed switch Solid shaft with EURO flange B10

TDPZ 0,2 + ESL

### Dimensions

#### TDPZ 0,2 + ESL - Version with Euro flange (B10)



#### TDPZ 0,2 + ESL - Version with housing foot (B3)

