

DC-Motor-Tacho Combinations

3 mNm

Precious Metal Commutation

For combination with
 Gearheads:
 20/1, 22E, 22/2, 22/5, 22/6, 23/1, 38/3
 Encoders:
 20/21B, 5500, 5540

Series 2251 ... S

Characteristics of the DC-Motor-Tacho Combination

Series	mechanical time constant τ_m	moment of inertia J	angular acceleration α_{max}	frequency	weight response
2251 U 4,5 S 1,5 G	16 ms	3,48 gcm ²	$52 \cdot 10^3 \text{ rad s}^{-2}$	1 500 Hz	91 g
2251 U 006 S 1,5 G	15 ms	2,60 gcm ²	$56 \cdot 10^3 \text{ rad s}^{-2}$	1 500 Hz	91 g
2251 U 012 S 1,5 G	16 ms	2,91 gcm ²	$56 \cdot 10^3 \text{ rad s}^{-2}$	1 500 Hz	91 g
2251 U 024 S 1,5 G	15 ms	1,87 gcm ²	$59 \cdot 10^3 \text{ rad s}^{-2}$	1 500 Hz	91 g

The characteristics of the DC-Micromotor, Series 2233 ... S regarding these combination, see on respective datasheet.

DC-Tachogenerator

		1,5 G	
EMF constant	K_E	1,5	mV/rpm
		14,325	mV/rad s ⁻¹
Tolerance of EMF constant		± 2	%
Load resistance	R_L	≥ 25	kΩ
Operating speed, max. continuous	$n_{e \text{ max.}}$	≤ 5 000	rpm
Terminal resistance	R	260	Ω
Ripple, peak-peak, typical		7	%
Ripple frequency, cycles		14	per turn
Linearity, without load, between 500 and 5 000 rpm		± 0,2	%
Reversion error		± 0,2	%
Temperature coefficient of EMF		0,02	% / °C
Temperature coefficient of armature resistance		0,4	% / °C
Rotor inductance	L	3 000	μH
Direction of rotation		reversible	
Polarity		dependent on direction of rotation	

Features

Mono-axis design

Motor and tachogenerator feature the patented skew wound ironless rotors (System FAULHABER®). The mono-axis design with the two commutator systems, facing each other in a patented arrangement, mounted on a single solid shaft, has excellent torsion characteristics and the highest frequency response possible.

Commutation system

The commutators and brushes are made of high quality precious metal alloy and provide a minimized but constant contact resistance as well as insensibility to changes in environment.

Operating temperature ranges:

Motor-Tacho, standard: -30 ... + 85 °C
 Motor-Tacho, optional: -30 ... + 125 °C
 Rotor, max. permissible: + 125 °C

