

# Combination

## Encoder and tachogenerator in combination

### Solid shaft with synchro flange

10...10000 pulses per revolution

#### OG 60 + GT 5



OG 60 + GT 5

#### Features

- Robust aluminium housing
- Flange connector with metal mating connector
- Synchro flange, solid shaft  $\varnothing 6$  mm
- Open circuit voltage 7...10 mV per rpm

#### Technical data - electrical ratings

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

#### Technical data - electrical ratings (tachogenerator)

Reversal tolerance	$\leq 0.1$ %
Linearity tolerance	$\leq 0.15$ %
Temperature coefficient	$\pm 0.005$ %/K (open-circuit)
Isolation class	B
Calibration tolerance	$\pm 5$ %
Climatic test	Humid heat, constant (IEC 60068-2-3, Ca)
Performance	0.075 W (speed $\geq 5000$ rpm)
Armature-circuit time-constant	$< 4.5$ $\mu$ s
Open-circuit voltage	7...10 mV per rpm

#### Technical data - electrical ratings (encoder)

Voltage supply	9...26 VDC 5 VDC $\pm 5$ %
Consumption w/o load	$\leq 100$ mA
Pulses per revolution	10...10000
Phase shift	$90^\circ \pm 8^\circ$
Scan ratio	46...54 %
Reference signal	Zero pulse, width $90^\circ$
Output frequency	$\leq 250$ kHz
Output signals	K1, K2, K0 + inverted
Output stages	HTL TTL/RS422

#### Technical data - mechanical design

Size (flange)	$\varnothing 58$ mm
Shaft type	$\varnothing 6$ mm solid shaft
Admitted shaft load	$\leq 50$ N axial $\leq 60$ N radial
Flange	Synchro flange
Protection DIN EN 60529	IP 54
Operating speed	$\leq 12000$ rpm
Operating torque typ.	1 Ncm
Rotor moment of inertia	22 gcm <sup>2</sup>
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+85 °C
Resistance	IEC 60068-2-6 Vibration 10 g, 10-2000 Hz IEC 60068-2-27 Shock 100 g, 6 ms
Connection	Flange connector M23, 12-pin Screw terminal connector
Weight approx.	350 g

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**Part number**

**Incremental encoder with tachogenerator**

**OG60** DN   +GT5.05L/4

Open-circuit voltage

- 07 7 mV per rpm
- 09 9.5 mV per rpm
- 10 10 mV per rpm

Voltage supply / signals

- CI 9...26 VDC / output stage HTL (C) with inverted signals
- TTL 5 VDC / output stage TTL with inverted signals
- R 9...26 VDC / output stage TTL with inverted signals

Pulse number - see table

Output signals

DN K1, K2, K0

**Pulse number**

10	300	625	1800	4096
20	360	720	2000	5000
60	400	900	2048	6000
100	500	1000	2500	8192
200	512	1250	3000	10000
256	600	1500	3600	

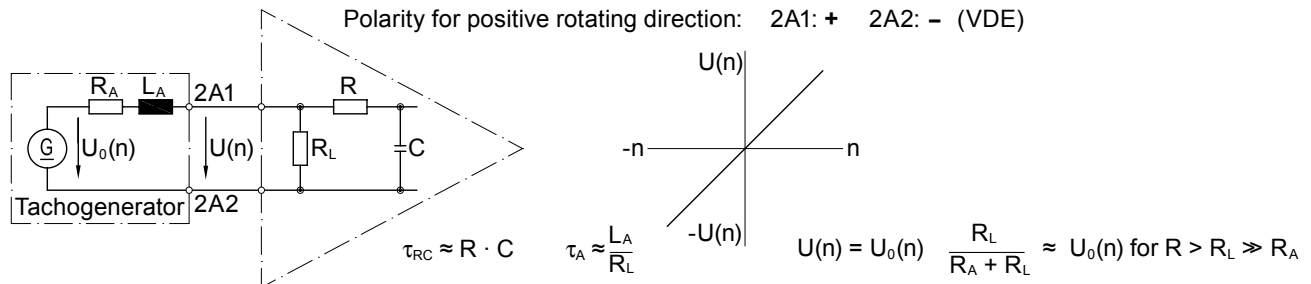
Other pulse numbers on request.

**Data according to type**

Type	Off-load voltage $U_0$ [mV/rpm]	Minimum load required depending on speed range [rpm]			Maximum operating speed $n_{max}$ [rpm]	Armature resistance $R_A(20^\circ C)$ [ $\Omega$ ]	Armature inductance $L_A$ [mH]
		0-3000	0-6000	0- $n_{max}$			
		$R_L$ [k $\Omega$ ]	$R_L$ [k $\Omega$ ]	$R_L$ [k $\Omega$ ]			
GT5.05L/407	7	$\geq 10$	$\geq 23$	$\geq 65$	10000	240	45
GT5.05L/409	9.5	$\geq 18$	$\geq 44$	$\geq 121$	10000	410	80
GT5.05L/410	10	$\geq 20$	$\geq 48$	$\geq 133$	10000	430	85

Superimposed ripple (for  $\tau_{RC} = 0.3$  ms):       $\leq 0.7\%$  (peak-peak)       $\leq 0.35\%$  (rms)

**Replacement switching diagram**



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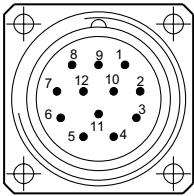
10...10000 pulses per revolution

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##### Terminal assignment

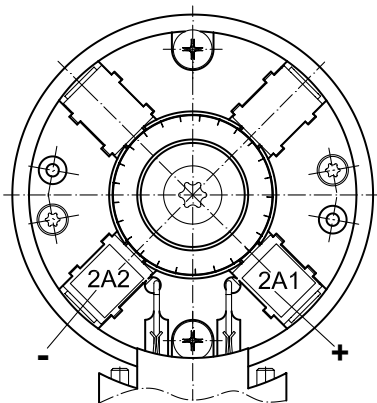
**View A-** Flange connector OG 60, M23, 12-pin, male contacts, clockwise

Pin	Assignment
1	$\overline{K2}$ (K2 inv.)
2	n.c.
3	K0 (zero pulse)
4	$\overline{K0}$ (zero pulse inv.)
5	K1
6	$\overline{K1}$ (K1 inv.)
7	n.c.
8	K2
9	n.c.
10	0 V
11	n.c.
12	+UB



**View B** - Connecting terminal GT 5

Polarity for positive direction of rotation



##### Accessories

Eccentric disks  
(clamping claws)

##### Connectors and cables

HEK 8 Sensor cable for encoders

##### Mounting accessories

K 35 Spring washer coupling  
for solid shaft  $\varnothing 6...12$  mm

##### Diagnostic accessories

HENQ 1100 Analyzer for encoders

