

Incremental Encoders

Economy, optical	3700 / 3720 (Shaft / Hollow shaft)	Push-Pull / RS422
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Mechanical characteristics		
Speed		max. 6 000 min ⁻¹
Rotor moment of inertia	shaft version	approx. 0.4 x 10 ⁻⁶ kgm ²
	hollow shaft version	1.4 x 10 ⁻⁶ kgm ²
Starting torque	shaft version	< 0.007 Nm
	hollow shaft version	< 0.01 Nm
Shaft load capacity	radial	20 N
	axial	10 N
Weight		approx. 0.1 kg
Protection to EN 60529	bearings, shaft	IP65
	cable outlet	IP67
EX approval for hazardous areas		optional Zone 2 and 22
Working temperature range		-20°C ... +70°C ¹⁾
Materials	shaft / hollow shaft	stainless steel
	housing, flange	PPA, 40% CF (carbon fibre)
	cable	PVC
Shock resistance acc. to EN 60068-2-27		1000 m/s ² , 6 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s ² , 10 ... 2000 Hz

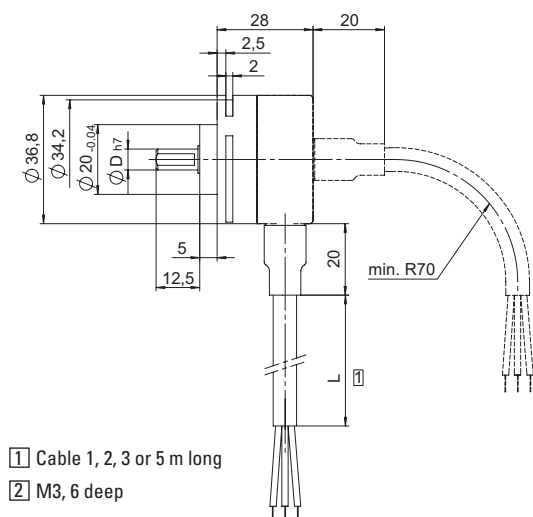
Electrical characteristics			
Output circuit	RS422 (TTL compatible)	Push-Pull (7272) ⁴⁾	Push-Pull (7272) ⁴⁾
Supply voltage	5 V (±5%)	5 ... 30 V DC	10 ... 30 V DC
Power consumption with inverted signal (no load)	typ. 40 mA / max. 90 mA	typ. 50 mA / max. 100 mA	typ. 50 mA / max. 100 mA
Permissible load / channel	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency	max. 250 kHz	max. 250 kHz	max. 250 kHz
Signal level	high	min. 2.5 V	min. U _B - 2.0 V
	low	max. 0.5 V	max. 0.5 V
Rising edge time t_r	max. 200 ns	max. 1 µs	max. 1 µs
Falling edge time t_f	max. 200 ns	max. 1 µs	max. 1 µs
Short circuit proof outputs ²⁾	yes ³⁾	yes	yes
Reverse connection of the supply voltage	no	no	yes
UL-certified	File 224618		
CE compliant acc. to	EN 61000-6-2, EN 61000-6-4 and EN 61000-6-3		
RoHS compliant acc. to	EU guideline 2002/95/EG		

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Terminal assignment

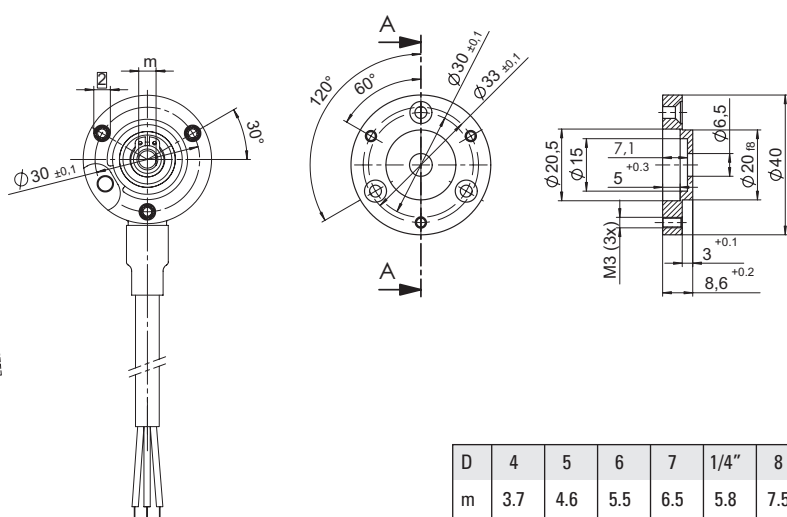
Signal	0V	+U _B	A	\bar{A}	B	\bar{B}	0	$\bar{0}$
Cable colour	WH	BN	GN	YE	GY	PK	BU	RD

Dimensions shaft version



- ① Cable 1, 2, 3 or 5 m long
- ② M3, 6 deep

Adapting flange Type A



D	4	5	6	7	1/4"	8
m	3.7	4.6	5.5	6.5	5.8	7.5

Mounting advice

The flanges and shafts of the encoder and drive should not both be rigidly coupled together at the same time! We recommend the use of suitable couplings (see Accessories section).

1) For versions with push-pull output and supply voltage >15 V DC: max. 55°C
 2) If supply voltage correctly applied.

3) Only one channel allowed to be shorted-out:
 If U_B = 5 V short circuit to channel, 0 V, or +U_B is permitted.
 If U_B = 5 ... 30 V short circuit to channel or 0 V is permitted.
 4) Max. recommended cable length 30 m

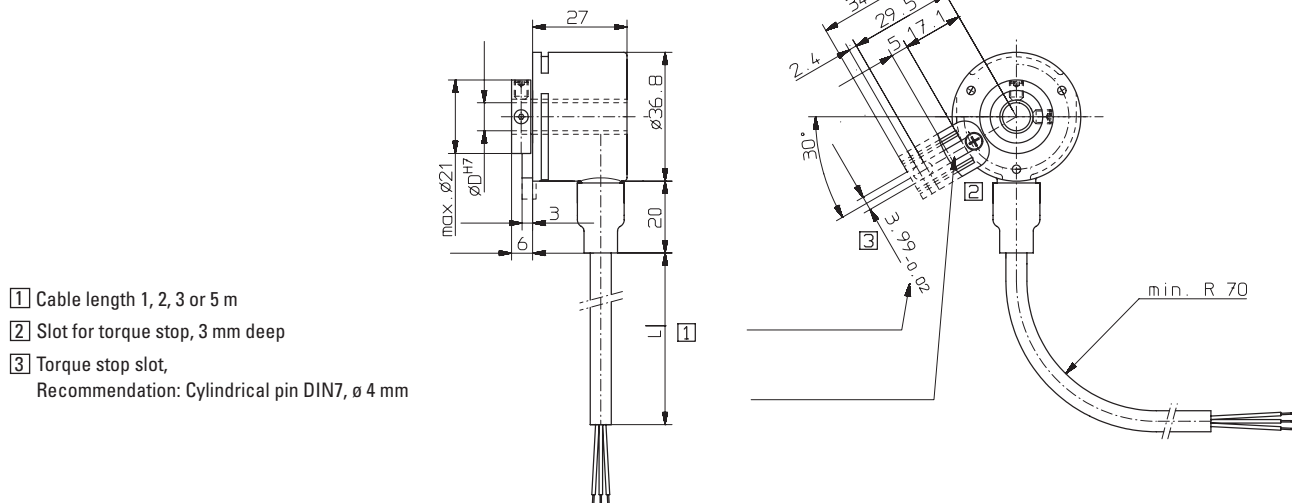
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Dimensions hollow shaft version

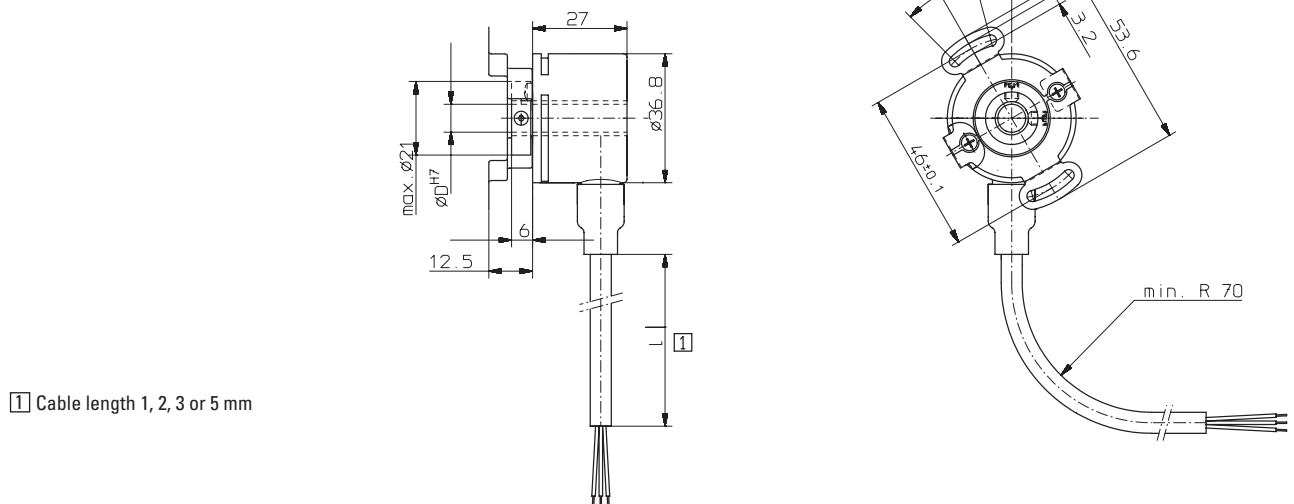
Flange with torque stop short

Long torque stop version is shown dashed



- 1 Cable length 1, 2, 3 or 5 m
- 2 Slot for torque stop, 3 mm deep
- 3 Torque stop slot,
Recommendation: Cylindrical pin DIN7, \varnothing 4 mm

Flange with stator coupling, double-winged



- 1 Cable length 1, 2, 3 or 5 mm