

## Mini Encoder ES 28

Optical incremental shaft encoder, very small and efficient

### Resolution

#### Resolution (Pulses/Revolution):

36	50	60	100
150	200	250	300
360	400	500	512
600	800	1000	1024
1500			

### Type explanation

#### ES 28-6-1000-05-D-R

Encoder type	Incremental
Flange diameter	ø 28 mm
Case diameter	ø 28 mm
Number of channels	3 = A + B + M 6 = AA + BB + MM
Resolutions	xxxx = Impulse pro Umdrehung
Supply voltage	05 = 5 VDC TTL 12 = 12 VDC ±10% 24 = 24 VDC ±10%
Output driver	D-RS422 C R
Position of connection	R
Shaft diameter	ø 5 mm

## Technical data

### Mechanical data

Rotational speed	? 6000 min <sup>-1</sup>
Torque	? 0,05 Ncm
Breakaway torque	? 0,1 Ncm
Moment of inertia	0,1 g cm <sup>2</sup>
shaft loading	? 10 N radial ? 5 N axial
Angular acceleration	? 10 <sup>5</sup> rad/sec <sup>2</sup>
Operational life of ball bearings	> 10 <sup>5</sup> h (1000 min <sup>-1</sup> )
Weight	? 0,1 kg

### Environmental conditions

Vibration	150 ms <sup>-2</sup> (50 Hz / 1h)
Shock	500 ms <sup>-2</sup> (11 ms)
Operating temperature	-10 ... +70°C
Storage temperature	-30 ... +80°C
Atmospheric humidity	? 85% r.h.
Protection class	IP 50 (DIN 40050/IEC 144)

### Electrical data

Scanning type	Optical, without contact
Transmitter, infrared	LED
Receiver	Photo-Transistor
Supply voltage	V <sub>cc</sub> = 5 VDC ±5% V <sub>cc</sub> = 12 VDC ±10% V <sub>cc</sub> = 24 VDC ±10%
Power consumption	? 80 mA, (Output C, R) ? 150 mA, (Output D)
Output frequency	? 150 kHz
Signal level	High > V <sub>cc</sub> -1 V Low < 0,5 V (20 mA)
Load capacity of the outputs	20 mA
Dielectric strength of outputs	+50 V

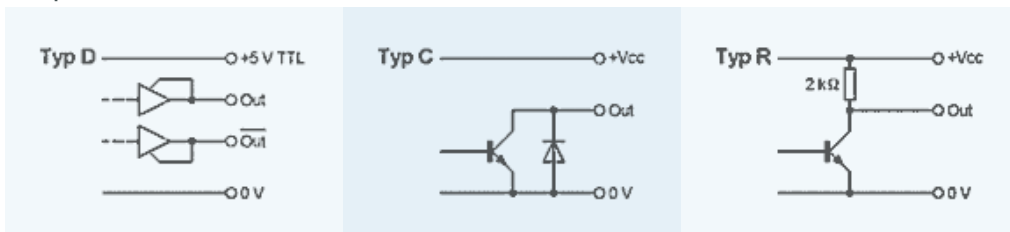
### Cable 3 channels

Wire colour	Signal
Red	+Vcc
Black	0 V GND
Blue	Signal A
White	Signal B
Yellow	Signal M
Shield	N.C.

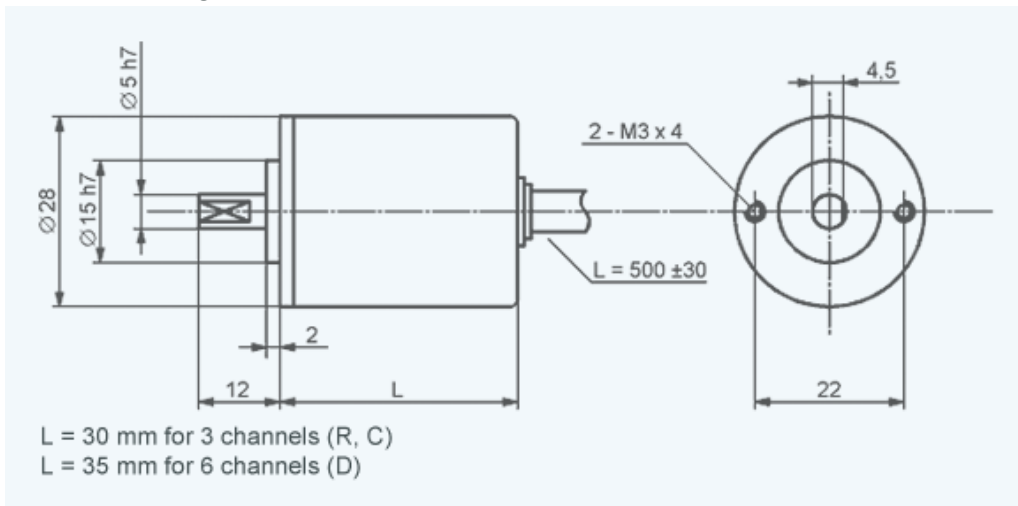
### Cable 6 channels

Wire colour	Signal
Red	+Vcc
Black	0 V GND
Green	Signal A+
Blue	Signal A-
White	Signal B+
Grey	Signal B-
Yellow	Signal M+
Orange	Signal M-
Shield	N.C.

### Output driver



### Outline drawing



Version E 504-209 · Subject to change