



## E400 / E470 Hollow Shaft Encoders

Incremental rotary encoders E400/E401 (flange diameter 58 mm) and E470/E471 (flange diameter 72 mm) can be coupled directly to any motor shaft by means of a joint. Available with or without zero pulse. Their construction technology employs a compact and innovating electronic circuitry granting the best performance at a contained price level.



### Mechanical and environmental specifications

Dimensions	See the drawing
Weight	280 g
Case material	ABS self-extinguishing or aluminium (series RE)
Joint hole diameter	6 or 8 or 10 mm
Revolutions per minute	10000 temporary
Starting torque	≤ 0.8 Ncm
Inertia	≤ 25 g cm <sup>2</sup>
Max load	80 N axial - 100 N radial
Vibration resistance (10÷2000 Hz)	100 m/sec <sup>2</sup>
Shock resistance (11ms)	50 G
Protection degree	IP64
Operating temperature	-10 ÷ +70°C
Stocking temperature	-20 ÷ 80°C

### Electrical and operating specifications

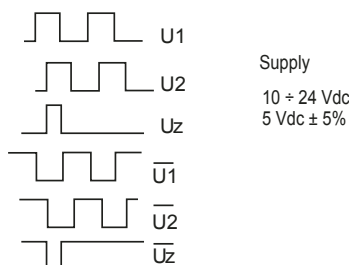
Pulse code	Incremental
Pulses-revolution	2 ÷ 36000
Zero reference pulse	1 pulse each revolution
Output Signals	Two square waves 90°±15° out of phase. Zero pulse 90°±15° wide
Electronic output	Push-pull, line-driver, open collector NPN, pull-up resistor NPN. Protection against short circuits
Supply	10÷24 Vdc or 5 Vdc±5%. Protection against polarity reversal
Current consumption	30÷80 mA
Max frequency	100/200 KHz
Connection outlets	Axial or radial connector type MS 7p (10p for line driver output) / Axial or radial cable 3 m long (1 m for line driver output)

### Electronics

Open collector - pull-up resistor - push-pull



Line driver



With connection diagram 1-3-4: signal U2 lags signal U1 with clockwise rotation (seen from the shaft side).  
 With connection diagram 2: signal U2 lags signal U1 with anticlockwise rotation (seen from the shaft side).

## ■ Connections

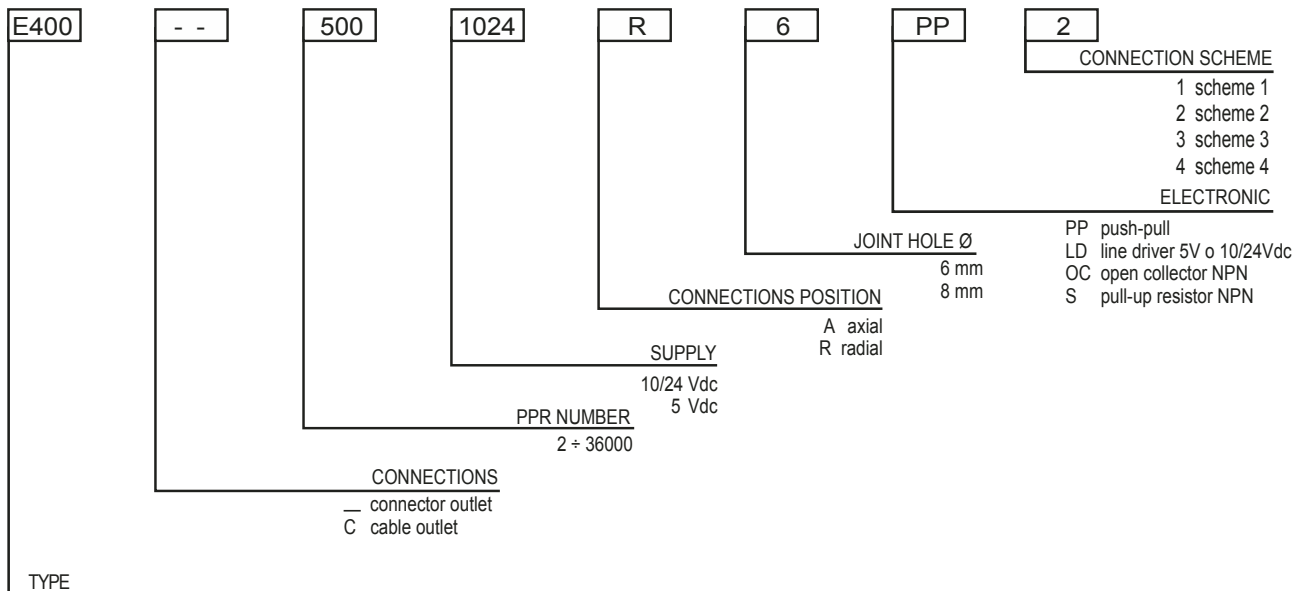
• Open collector - pull-up resistor - push-pull

Signals	7-pin connector		Cable colours
	Scheme 1	Scheme 2	
Out 1	A	C	White
Out 2	B	E	Green
Out Z	C	D	Brown
+Vdc	D	F	Red
Ov	F	A	Blue
Non connected	E	B	
Non connected	G	G	
Earth			Shield

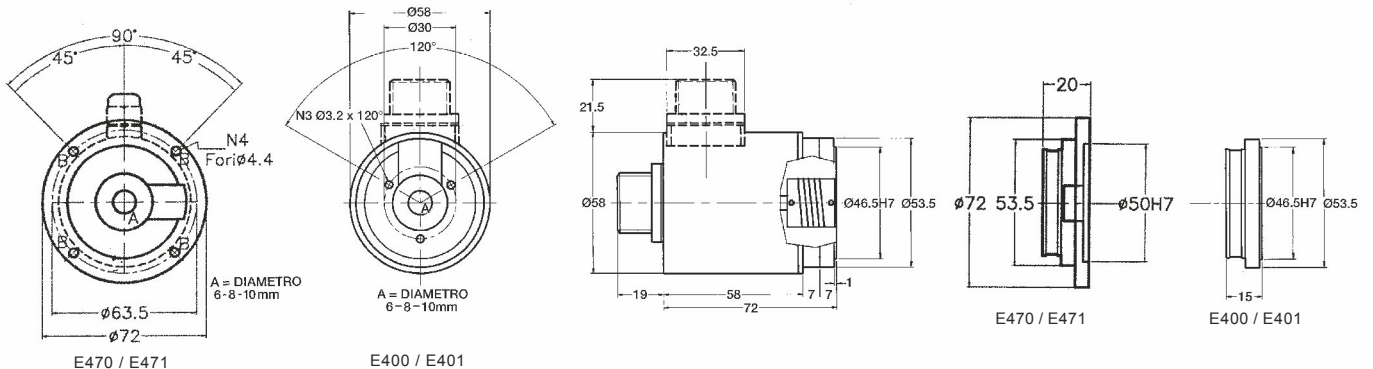
• Line driver

Signals	Connector		Cable colours
	7 pin	10 pin	
	Scheme 3	Scheme 4	
	without zero pulse	with zero pulse	
Out 1	A	A	White
Out 2	B	B	Green
Out Z		C	Grey
+Vdc	D	D	Red
+Vdc		E	Red
Ov	F	F	Blue
Out 1	C	G	Brown
Out 2	E	H	Yellow
Out Z		I	Pink
Non connected	G	J	
Earth			Shield

## ■ Ordering information



## ■ Dimensions



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