



## Euro No Shaft Encoder ES 401

Optical incremental encoder with hollow shaft, small and efficient

### Resolution

#### Resolution (Pulses/Revolution):

|      |      |      |      |
|------|------|------|------|
| 20   | 30   | 32   | 40   |
| 50   | 60   | 100  | 125  |
| 200  | 256  | 300  | 360  |
| 400  | 500  | 512  | 600  |
| 800  | 900  | 1000 | 1024 |
| 1200 | 1500 | 1800 | 2000 |
| 2048 | 2500 | 3600 |      |

### Type explanation

#### ES 401-3-2500-24-P-S/Ø6

|                        |   |
|------------------------|---|
| Encoder type           | Incremental   |
| Hollow shaft           | Yes   |
| Flange diameter        | ø 38 mm   |
| Case diameter          | ø 38 mm   |
| Number of channels     | 3 = A + B + M<br>6 = AA + BB + MM                             |
| Resolutions            | xxxx = Impulse pro Umdrehung                                  |
| Supply voltage         | 05 = 5 VDC ±5%<br>12 = 4,5 ... 13 VDC<br>24 = 10,8 ... 26 VDC |
| Output driver          | D-RS422<br>C<br>R<br>P  |
| Position of connection | S   |
| Shaft diameter         | ø 5 mm  |

## Technical data

### Mechanical data

|                      |  |
|----------------------|--|
| Rotational speed     | ? 6000 min <sup>-1</sup>               |
| Torque               | ? 0,1 Ncm                              |
| Moment of inertia    | 8 g cm <sup>2</sup>                    |
| shaft loading        | ? 30 N radial<br>? 10 N axial          |
| Angular acceleration | ? 10 <sup>5</sup> rad/sec <sup>2</sup> |
| Weight               | ? 0,15 kg                              |

### Environmental conditions

|                       |                                   |
|-----------------------|-----------------------------------|
| Vibration             | 150 ms <sup>-2</sup> (55 Hz / 1h) |
| Shock                 | 300 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                 | Vcc = 5 VDC ±5%, output D<br>Vcc = 4,5 ... 13 VDC, output R, C<br>Vcc = 10,8 ... 26 VDC, output C, P |
| Power consumption              | ? 80 mA, output C, R, P<br>? 150 mA, Output D  |
| Output frequency               | ? 200 kHz  |
| Signal level                   | High > Vcc -1 V<br>High > Vcc -1 V Low < 0,5 V (20 mA)   |
| Load capacity of the outputs   | 20 mA  |
| Dielectric strength of outputs | +50 V  |

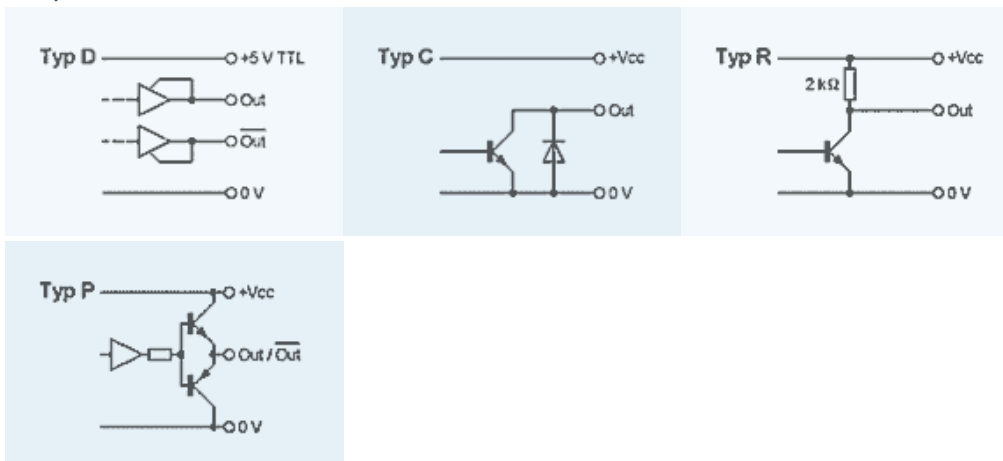
### Cable 3 channels

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

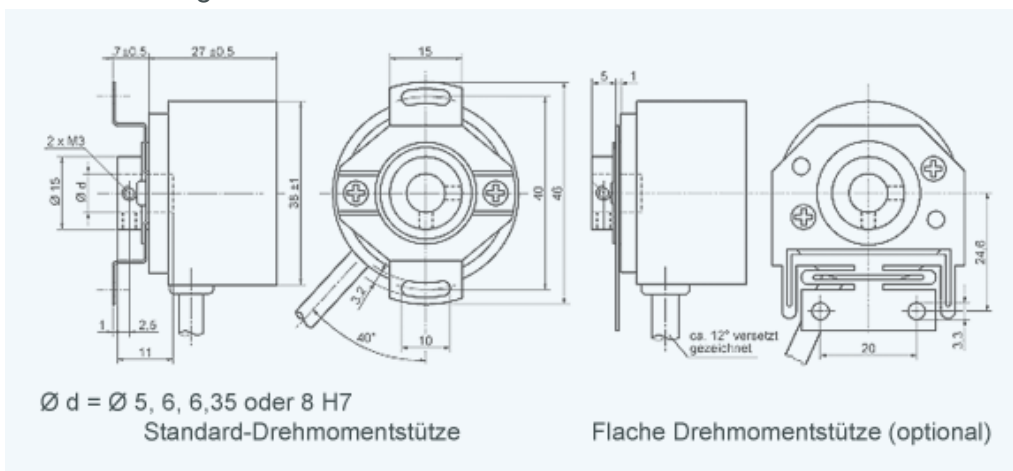
### Cable 6 channels

| 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



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