

Incremental encoders

| | | |
|---------------------------|---|--------------|
| Miniature magnetic | 2430 / 2440 (shaft / hollow shaft) | RS422 |
|---------------------------|---|--------------|



Thanks to their non-contact magnetic scanning technology the miniature-format encoders 2430 and 2440 guarantee exceptional ruggedness – and this with a resolution of up to 256 pulses per revolution.

As a result of their compact outer diameter of only 24 mm, they are ideal for use where installation space is restricted.



Incremental encoders

| | | | | | |
|-----------------------|-------------------|-----------------------------|---------------------|-----------------------------|----------------------------|
| | | | | | |
| High rotational speed | Temperature range | Shock / vibration resistant | Short-circuit proof | Reverse polarity protection | Magnetic sensor technology |

Magnetically robust

- The non-contact magnetic technology prevents wear and guarantees a long service life.
- Multiple clamping affords high strain relief to the cable outlet, ensuring longer life.
- Wide temperature range from -20°C up to +85°C.
- Flexible connection possibilities: can be supplied with radial or axial cable outlet.

Compact power

- Resolution up to 256 pulses per revolution.
- Shaft and hollow shaft version.

Order code Shaft version

| | |
|---------------|---|
| 8.2430 | . <u>X</u> <u>X</u> <u>6</u> <u>X</u> . <u>XXXX</u> |
| Type | a b c d e |

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



a Flange

- 1 = \varnothing 24 mm [0.94"]
- 3 = \varnothing 28 mm [1.10"]
- 2 = \varnothing 30 mm [1.18"]

b Shaft ($\varnothing \times L$)

- 1 = \varnothing 4 x 10 mm [0.16 x 0.39"]
- 3 = \varnothing 5 x 10 mm [0.20 x 0.39"], with flat
- 2 = \varnothing 6 x 10 mm [0.24 x 0.39"]

c Output circuit / power supply

- 6 = RS422 (with inverted signal) / 5 V DC

d Type of connection

- 1 = axial cable, 2 m [5.56'] PVC
- A = axial cable, special length PVC *)
- 2 = radial cable, 2 m [5.56'] PVC
- B = radial cable, special length PVC *)

*) Available special lengths (connection types A, B):
3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.2430.126A.0256.0030 (for cable length 3 m)

e Pulse rate

- 1 ... 128 (factory programmable)
- 256
- (e.g. 128 pulses => 0128)

Optional on request
- other pulse rates

Order code Hollow shaft

| | |
|---------------|---|
| 8.2440 | . <u>1</u> <u>X</u> <u>6</u> <u>X</u> . <u>XXXX</u> |
| Type | a b c d e |

If for each parameter of an encoder the **underlined preferred option** is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



a Flange

- 1 = \varnothing 24 mm [0.94"]

b Blind hollow shaft

- (insertion depth max. 14 mm [0.55"])
- 1 = \varnothing 4 mm [0.16"]
- 2 = \varnothing 6 mm [0.24"]

c Output circuit / power supply

- 6 = RS422 (with inverted signal) / 5 V DC

d Type of connection

- 1 = axial cable, 2 m [5.56'] PVC
- A = axial cable, special length PVC *)
- 2 = radial cable, 2 m [5.56'] PVC
- B = radial cable, special length PVC *)

*) Available special lengths (connection types A, B):
3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.2440.126A.0256.0030 (for cable length 3 m)

e Pulse rate

- 1 ... 128 (factory programmable)
- 256
- (e.g. 128 pulses => 0128)

Optional on request
- other pulse rates

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| | | |
|--|---|-------------------------|
| Mounting accessory for shaft encoders | | Order no. |
| Coupling | bellows coupling ø 15 mm [0.59"] for shaft 4 mm [0.16"] | 8.0000.1202.0404 |

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
 Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Technical data

| Mechanical characteristics | |
|--|---|
| Maximum speed | 12000 min ⁻¹ |
| Mass moment of inertia | approx. 0.1 x 10 ⁻⁶ kgm ² |
| Starting torque - at 20°C [68°F] | < 0.01 Nm |
| Shaft load capacity | radial 10 N axial 20 N |
| Weight | approx. 0.06 kg [2.11 oz] |
| Protection acc. to EN 60529 | housing side IP65 (IP67 on request) flange side IP50 (IP67 on request) |
| Working temperature range | -20°C ... +85°C [-4°F ... +185°F] |
| Materials | shaft / hollow shaft stainless steel clamping flange MS58 |
| 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 , 55 ... 2000 Hz |

| Electrical characteristics | |
|---|---|
| Output circuit | RS422 (TTL compatible) |
| Power supply | 5 V DC (±5 %) |
| Power consumption with inverted signal (no load) | typ. 40 mA max. 90 mA |
| Permissible load / channel | max. +/- 20 mA |
| Pulse frequency | max. 300 kHz |
| Signal level | HIGH min. 2.5 V LOW max. 0.5 V |
| Rising edge time t_r | max. 200 ns |
| Falling edge time t_f | max. 200 ns |
| Min. pulse edge interval | 0.5 µs ¹⁾ |
| Short circuit proof outputs²⁾ | yes ³⁾ |
| Reverse polarity protection of the power supply | no |
| CE compliant acc. to | EMC guideline 2014/30/EU RoHS guideline 2011/65/EU |

Terminal assignment

| Output circuit | Type of connection | Cable (isolate unused wires individually before initial start-up) | | | | | | | | | |
|-----------------------|--------------------|---|-----|----|----|-----------|----|-----------|----|-----------|--|
| 6 with inv. signal | 1, 2, A, B | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | |
| | | Cable color: | WH | BN | GN | YE | GY | PK | BU | RD | |

- +V: Encoder power supply +V DC
- 0 V: Encoder power supply ground GND (0 V)
- A, \bar{A} : Incremental output channel A
- B, \bar{B} : Incremental output channel B
- 0, $\bar{0}$: Reference signal

1) For max. speed use a counter with input frequency of min. 500 kHz.
 2) If power supply correctly applied.
 3) Only one channel allowed to be shorted-out:
 If +V = 5 V DC short circuit to channel, 0 V, or +V is permitted.

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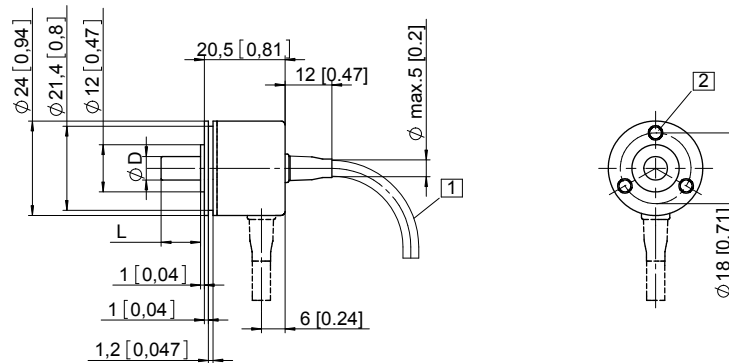
Dimensions shaft version

Dimensions in mm [inch]

Flange type 1, \varnothing 24 [0.94]

- 1 min R50 [1.97]
- 2 3 x M3, 4 [0.16] deep

| D | Fit | L |
|----------|-----|-----------|
| 4 [0.16] | f7 | 10 [0.39] |
| 5 [0.20] | f7 | 10 [0.39] |
| 6 [0.24] | f7 | 10 [0.39] |

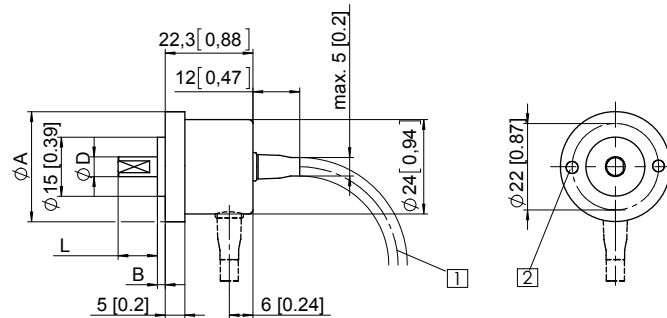


Flange type 2, \varnothing 30 [1.18]

Flange type 3, \varnothing 28 [1.10]

- 1 min R50 [1.97]
- 2 2 x M3, 4 [0.16] deep

| D | Fit | L |
|----------|-----|-----------|
| 4 [0.16] | f7 | 10 [0.39] |
| 5 [0.20] | f7 | 10 [0.39] |
| 6 [0.24] | f7 | 10 [0.39] |



| Flange type | A | B |
|-------------|-------------------------|----------|
| 2 | \varnothing 30 [1.18] | 3 [0.12] |
| 3 | \varnothing 28 [1.10] | 2 [0.08] |

Dimensions hollow shaft version

Dimensions in mm [inch]

Flange type 1, \varnothing 24 [0.94]

- 1 4 x M3 DIN 915 - SW1.5

| D | Fit | L |
|----------|-----|-----------|
| 4 [0.16] | H7 | 14 [0.55] |
| 6 [0.24] | H7 | 14 [0.55] |
| 1/4" | H7 | 14 [0.55] |

L = insertion depth max. blind hollow shaft

