

Incremental encoders

**Large hollow shaft
optical**

5821 (hollow shaft)

Push-pull / RS422



Optimized proportions, optimized costs:

With an overall diameter of just 58 millimeters the series 5821 boasts a hollow shaft of up to 28 millimeters diameter.



Temperature range
-20°... +85°C



Shock / vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection

Adaptable

- Through hollow shaft from 16 mm up to 28 mm.
- With cable connection or M12 connector.
- High resolution up to 5000 pulses per revolution.

Order code Hollow shaft

8.5821 . **1XXX** . **XXXX**
Type a b c d e

a Flange

1 = with spring element, ø 58 mm [2.28"]

b Through hollow shaft

K = ø 16 mm [0.63"]
C = ø 20 mm [0.79"]
8 = ø 22 mm [0.87"]
6 = ø 24 mm [0.94"]
5 = ø 25 mm [0.98"]
3 = ø 28 mm [1.10"]

c Output circuit / power supply

1 = RS422 (with inverted signal) / 5 V DC
4 = RS422 (with inverted signal) / 8 ... 30 V DC
3 = Push-pull (with inverted signal) / 8 ... 30 V DC

d Type of connection

1 = radial cable, 1 m [3.28'] PVC
E = radial M12 connector, 8-pin

e Pulse rate

50, 60, 100, 125, 250, 400, 500, 512, 960, 1000, 1024, 2000, 2048, 5000 (e.g. 100 pulses => 0100)

Optional on request

- other pulse rates
- other hollow shaft diameters

Connection technology

Order no.

Cordset, pre-assembled

M12 female connector with coupling nut, 8-pin
2 m [6.56'] PVC cable

05.00.6041.8211.002M

Connector, self-assembly (straight)

M12 female connector with coupling nut, 8-pin

05.CMB 8181-0

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.

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Technical data

Mechanical characteristics	
Maximum speed	2500 min ⁻¹
Mass moment of inertia	approx. 3.5 x 10 ⁻⁶ kgm ²
Starting torque – at 20°C [68°F]	< 0.1 Nm
Weight	approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529	IP64
Working temperature range	
at max. speed 2000 min ⁻¹	-20°C ... +70°C [-4°F ... +158°F]
at max. speed 2500 min ⁻¹	-20°C ... +60°C [-4°F ... +140°F]
Material	hollow shaft steel
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 , 35 ... 2000 Hz

Electrical characteristics		
Output circuit	RS422	Push-pull (7272 compatible)
Power supply	5 V DC (±5 %) or 8 ... 30 V DC	8 ... 30 V DC
Power consumption with inverted signal (no load)	typ. 40 mA max. 90 mA	typ. 40 mA max. 100 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 40 mA
Pulse frequency	max. 300 kHz	max. 200 kHz
Signal level	HIGH min. 2.5 V LOW max. 0.5 V	min. +V - 3.0 V max. 2.5 V
Rising edge time t_r	max. 200 ns	max. 1 μs
Falling edge time t_f	max. 200 ns	max. 1 μs
Short circuit proof outputs ¹⁾	yes	yes
Reverse polarity protection of the power supply	yes	yes
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU	

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Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)									
1, 3, 4	1	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
		Core color:	WH	BN	GN	YE	GY	PK	BU	RD	shield
Output circuit	Type of connection	M12 connector, 8-pin									
1, 3, 4	E	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
		Pin:	1	2	3	4	5	6	7	8	PH ²⁾

- +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
- PH \perp : Plug connector housing (shield)

Top view of mating side, male contact base



M12 connector, 8-pin

1) If power supply correctly applied.
2) PH = shield is attached to connector housing.

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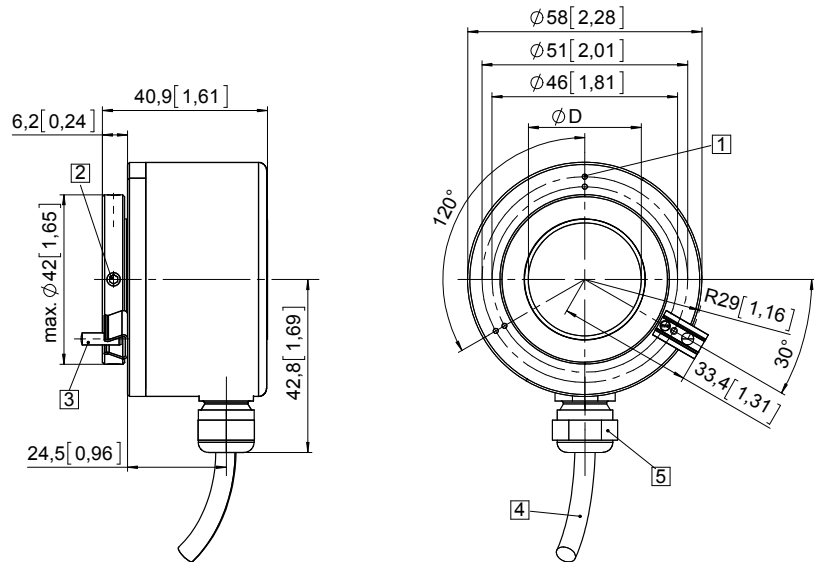
Push-pull / RS422

Dimensions

Dimensions in mm [inch]

Flange with spring element, $\varnothing 58$ [2.28]
Cable version, connection type 1

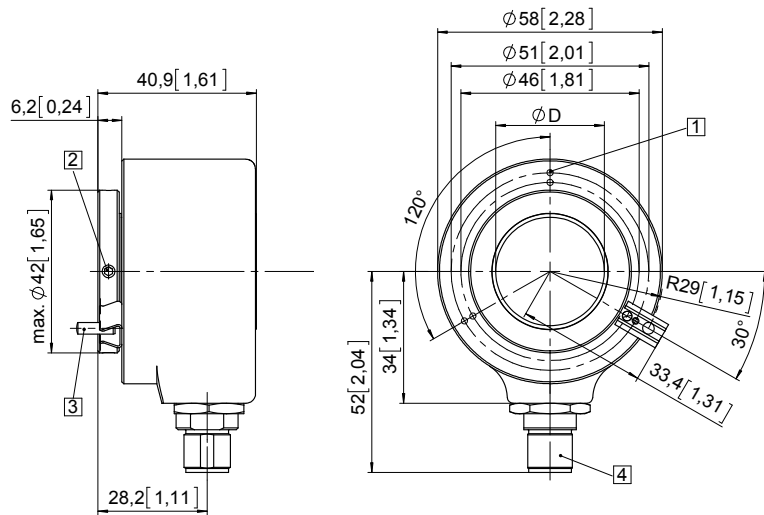
- 1 M1.6 / 5 [0.2] deep
- 2 4 x socket set screw M4x6 DIN 913
- 3 Cylindrical pin 3m6x12 DIN 6325 included
- 4 Cable length 1 m [3.28']
- 5 Cable gland PG7



D	Fit
16 [0.63]	F7
20 [0.79]	F7
24 [0.94]	F7
25 [0.98]	F7
28 [1.10]	F7

Flange with spring element, $\varnothing 58$ [2.28]
M12 connector version, connection type E

- 1 M1.6 / 5 [0.2] deep
- 2 4 x socket set screw M4x6 DIN 913
- 3 Cylindrical pin 3m6x12 DIN 6325 included
- 4 Connector M12



D	Fit
16 [0.63]	F7
20 [0.79]	F7
24 [0.94]	F7
25 [0.98]	F7
28 [1.10]	F7