

# Absolute Encoders – Multiturn

<b>Large hollow shaft optical / magnetic</b>	<b>9080 (Hollow shaft)</b>	<b>PROFIBUS DP</b>
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The multiturn encoder 9080 with Profibus interface and combined optical / mechanical sensor technology is perfect for Profibus applications, where a large hollow shaft is required.

This through hollow shaft is available with a diameter up to 28 mm. The maximum resolution of the 9080 is 25 bits.



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High rotational speed	Temperature range	High protection level	High shaft load capacity	Shock / vibration resistant	Short-circuit proof	Reverse polarity protection

### Adaptable

- With cable gland or M12 connector
- Hollow shaft of 12 up to 28 mm
- Programmable over the bus

### User-friendly

- All relevant parameters programmable
- Wide selection of shafts and fixing options

<b>Order code</b> <b>Hollow shaft</b>	<b>8.9080</b> Type	<b>. XX 3 X .</b> a b c d	<b>3001</b> e
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<b>a Flange</b> 1 = without mounting aid 2 = with spring element short 3 = with spring element long 4 = with mounting flange 5 = with tether arm long	<b>b Hollow shaft</b> 1 = $\varnothing$ 12 mm [0.47"] 2 = $\varnothing$ 15 mm [0.59"] 9 = $\varnothing$ 16 mm [0.63"] 3 = $\varnothing$ 20 mm [0.79"] 4 = $\varnothing$ 24 mm [0.94"] C = $\varnothing$ 25 mm [0.98"] 5 = $\varnothing$ 28 mm [1.10"] 6 = $\varnothing$ 5/8" 7 = $\varnothing$ 1"	<b>c Interface / Power supply</b> 3 = PROFIBUS DP / 10 ... 30 V DC	<b>e Fieldbus profile</b> 3001 = Profibus Class 2
<b>d Type of connection</b> 1 = removable bus terminal cover, with cable gland M16 2 = removable bus terminal cover, with 3 x M12 connector, 5-pin			

### Mounting accessory for hollow shaft encoders

<b>Cylindrical pin, long</b> for torque stops		With fixing thread	Order No. <b>8.0010.4700.0003</b>
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<b>Connection technology</b>		
<b>Connector, self-assembly (straight)</b>	Coupling M12 for Bus in Connector M12 for Bus out Connector M12 for power supply	<b>05.BMWS 8151-8.5</b> <b>05.BMSWS 8151-8.5</b> <b>05.B8141-0</b>
<b>Cordset, pre-assembled</b>	M12 cordset for Bus in , 6 m [19.68'] PUR cable M12 cordset for Bus out, 6 m [19.68'] PUR cable M12 cordset for power supply, 2 m [6.56'] PUR cable	<b>05.00.6011.3211.006M</b> <b>05.00.6011.3411.006M</b> <b>05.00.6061.6211.002M</b>

Further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://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](http://www.kuebler.com/connection_technology)

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## Technical data

### Mechanical characteristics

Max. speed	6 000 min <sup>-1</sup> , 3 000 min <sup>-1</sup> (continuous)
Moment of inertia	approx. 72 x 10 <sup>-6</sup> kgm <sup>2</sup>
Starting torque	< 0.2 Nm
Weight	approx. 0.9 kg [31.74 oz]
Protection EN 60529	IP65
EX approval for hazardous areas	optional Zone 2 and 22
Working temperature range	-10°C ... +70°C [+14°F ... +158°F]
Material	hollow shaft stainless steel H7
Shock resistance acc. EN 60068-2-27	2500 m/s <sup>2</sup> , 6 ms
Vibration resistance acc. EN 60068-2-6	100 m/s <sup>2</sup> , 10 ... 2000 Hz

### Electrical characteristics

Power supply (+V)	10 ... 30 V DC
Power consumption	290 mA
Recommended fuse	T 0.315 A
Performance against magnetic influence acc. to	EN 61000-4-8, Severity level 5
UL approval	File 224618
CE compliant acc. to	EMC guideline 2004/108/EC
RoHS compliant acc. to	guideline 2002/95/EC

### Interface characteristics PROFIBUS DP

Resolution Singleturn	1 ... 8192 (13 bit) scalable
Number of revolutions	max. 4096 scalable 1 ... 4096 (12 bit)
Code	Binary
Interface	RS485
Protocol	PROFIBUS DP, encoder profile class 2
Baud rate	max. 12 Mbit/s
Device address	adjustable with DIP-switches

### Profibus Encoder-Profile V1.1

Profibus Encoder-Profile V1.1 The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component within the PROFIBUS field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer.

Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that PROFIBUS-compliant device systems can be used now with the guarantee that they are ready for the future too.

#### The following parameters can be programmed:

- Direction of rotation
- Scaling factor
  - number of pulse/rotation
  - total resolution
- Preset value
- Diagnostics mode

#### The following functionality is integrated:

- Galvanic isolation of the Fieldbus stage with DC/DC converter
- Line driver according to RS485 max. 12 MB
- Addressing by means of rotary switches
- Diagnostics LED
- Full Class 1 and Class 2 functionality

### Terminal assignment terminal box

Interface	Type of connection	Terminal box												
		Signal:	ENC.		BUS IN		BUS OUT			ENC.		Shield		
3	1		+V DC	0 V	0 V	B	A	A	B	0 V	0 V	+VDC	⊥	
		Terminal:	1	2	3	4	5	6	7	8	9	10	11	12

### Terminal assignment M12 connector

Interface	Type of connection	Function	M12 connector						Diagram
			Signal:	–	PB_A	–	PB_B	–	
3	2	Bus in	Signal:	–	PB_A	–	PB_B	–	
			Pin:	1	2	3	4	5	
		Power supply	Signal:	+V	–	0 V	–		
			Pin:	1	2	3	4		
		Bus out	Signal:	BUS_VDC	PB_A	PB_GND	PB_B	⊥	
			Pin:	1	2	3	4	5	

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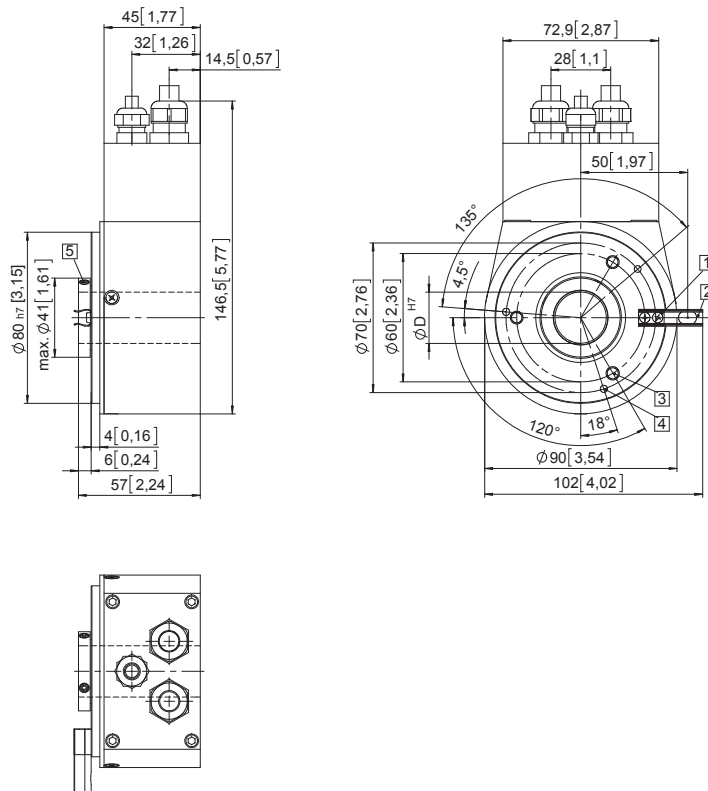
**PROFIBUS DP**

## Dimensions

Dimensions in mm [inch]

### Flange with spring element

- 1 Spring element short (flange No. 2)  
Cylindrical pin DIN 6325,  $\varnothing$  6 [0.24]
- 2 Spring element long (flange No. 3)  
Cylindrical pin DIN 6325,  $\varnothing$  6 [0.24]
- 3 3 x M6, 10 [0.39] deep
- 4 3 x M4, 7 [0.28] deep
- 5 Recommended torque for the  
clamping ring 1.0 Nm



### Flange with tether arm long

- 1 Recommended torque for the  
clamping ring 1.0 Nm

