ROTARY TRANSDUCER

Links to further documents for this series:
Installation guide



WPH SERIES

Key-Features:
- *Wear-free Hall-effect sensor element*
- *Housing diameter 40 mm (WPH-M) or 60 mm (WPH)*
- *Shaft diameter 6 mm (WPH-M) or 10 mm (WPH)*
- *Measurement ranges up to 360°*
- *Linearity up to 0.2 %*
- *Analog output: 0.5...4.5 V, 0...5 V, 0...10 V, 4...20 mA*
- *Temperature range: -20...+85 °C (optional -40...+85 °C or -20...+120 °C)*
- *Housing: Aluminium anodised, stainless steel*

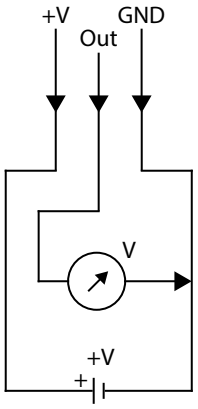
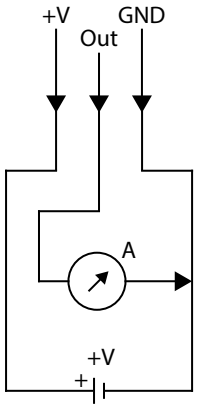
Content

Technical Data 2
Technical Drawing 3
Options 4
Electrical Connection.....4
Accessories Couplings 4
Order Code.....5

TECHNICAL DATA

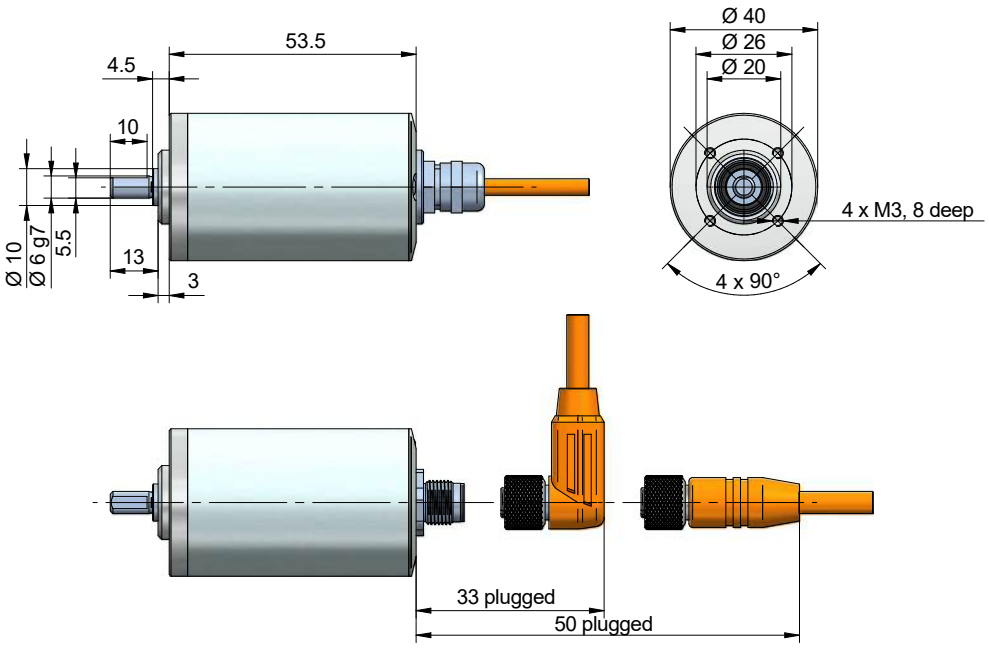
		WPH-M	WPH
Housing diameter	[mm]	40	60
Shaft diameter	[mm]	6	10
Mounting		centering collar Ø 20 mm	clamping flange Ø 36 mm
Measurement range	[°]	0...360 (min. 20)	
Linearity	[%]	0.3	
Improved Linearity (optional)	[%]	0.2	
Sampling rate	[µs]	150	
Continuous rotation possible		yes	
Output signal		0.5...4.5 V (ratiometric) / 0...5 V (ratiometric) / 0...10 V / 4...20 mA	
Signal direction (view on shaft)		signal increasing clock wise or counter clock wise	
Rotation speed max.	[r/min]	max. 10,000 (depending on the resolution of the output signal)	
Torque	[Nm]	0.008	
Shaft bearing		2 sealed bearing, type 2RS	
Shaft Load		radial: 40 N | axial: 25 N	radial: 50 N | axial: 30 N
Protection class		housing: IP67 | shaft: IP60 (optional: IP64 or IP67)	
Operating temperature	[°C]	-20...+85 (optional: -40...+85 or -20...+120)	
Storage temperature	[°C]	-30...+85	
Life cycle		100 x 10^6 turns	
Connection		connector output M12 or cable output (TPE)	
Housing material		Aluminium, titanium grey anodised; stainless steel	
Shaft material		stainless steel	
Weight	[g]	approx. 130	approx. 260

ELECTRICAL DATA

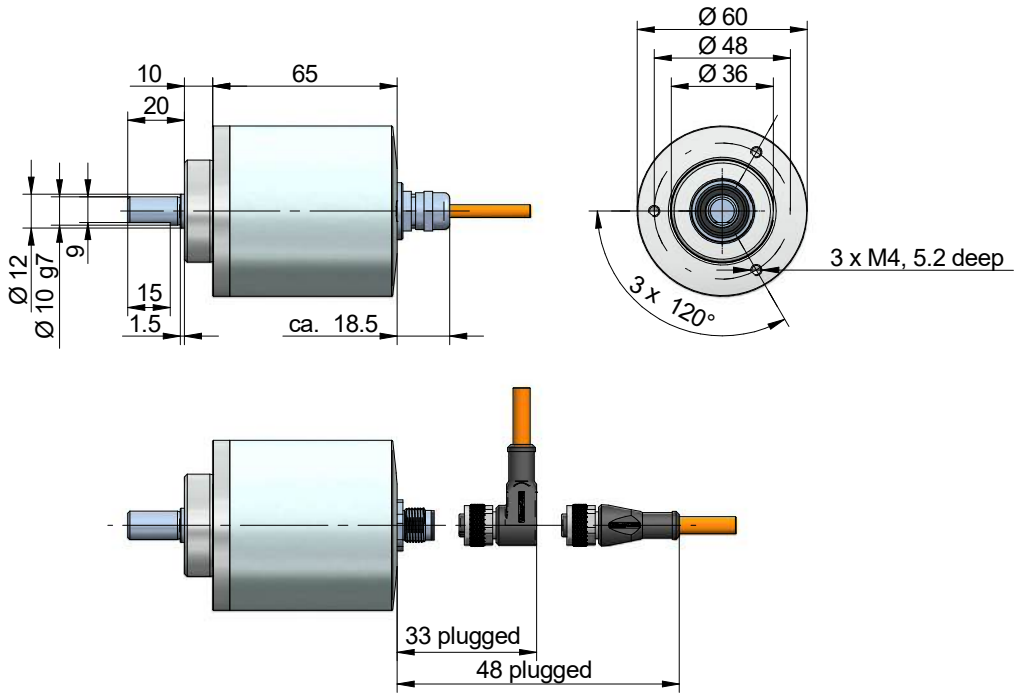
Output type	**Voltage**			**Current**
Order Code	4,5V	5V	10V	420A
Output	0.5...4.5 V (ratiometric)	0...5 V (ratiometric)	0...10 V	4...20 mA
Power supply	5 VDC (4.5...5.5 VDC)		14...30 VDC	7...30 VDC
Current consumption max. (no load)	8 mA			
Resolution	10 bit at 90° / 11 bit between 90° and 180° / 12 bit between 180° and 360°			
Noise	dependent on the quality of the power supply		0.5 mV	1 µA
Operating temperature	-20...+85 °C / optional: -40...+85 °C or -20...+120 °C		-20...+85 °C / optional: -40...+85 °C	
Temperature coefficient	±0.01 %/K			
Circuit				

TECHNICAL DRAWING

Version WPH-M



Version WPH



OPTIONS

The following table gives an overview of frequently used options, with which the standard sensors can be equipped. Please pay attention that not all options can be combined. Information on possible combinations can be found in the order codes.

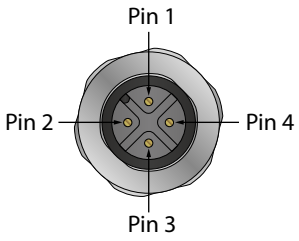
Option	Order code	Description
Improved linearity	WP-L20	Improved linearity 0.2 %
Protection class IP64	WP-IP64	Please use this option in case the sensor is used in a humid environment.
Protection class IP67	WP-IP67	Please use this option in case the sensor (temporarily) immersed in water.
Corrosion protection HARTCOAT®	WP-CO	All external anodised aluminium parts of sensor are coated with HARTCOAT®. This coating is a hard-anodic oxidation that protects the sensor from corrosion by aggressive media (e. g. sea water) with a hard ceramics-like layer.
Increased temperature range high	WP-H120	Devices with potentiometer output and cable output can be supplied with this option. Temperature range -20...+120 °C.
Increased temperature range low	WP-T40	The use of special components and grease enables the sensor to work at a temperature range -40...+85 °C.

ELECTRICAL CONNECTION

Function	Cable output	Connector output	Connection cable K4P...
+V	BN	Pin 1	BN
Out	WH	Pin 2	WH
GND	BU	Pin 3	BU
n. c.	BK	Pin 4	BK

Cable specifications	
Cable type	TPE, flexible
Diameter	Ø4.5 mm
Wire	0.25 mm²
Temperature	fixed installation: -30...+85 °C, flexible installation: -20...+85 °C

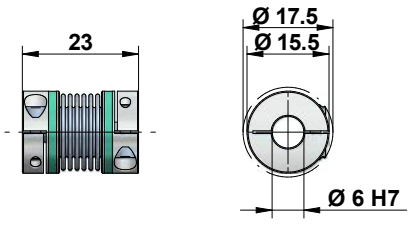
Connector output M12 , male



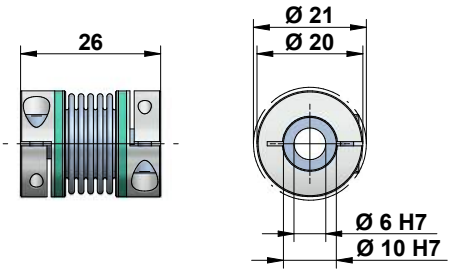
ACCESSORIES COUPLINGS

Metal bellow couplings are used for the backlash-free connection of encoders and drive shafts (e.g. motor shafts). The couplings work wear-free and compensate for axial, radial and angular misalignment. Mounting on the shafts is effected by means of frictional locking using clamping hubs.
The following couplings are available as standard accessories:

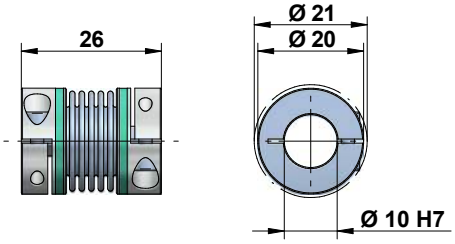
MBK-15.5-23-06-06



MBK-20-26-06-10



MBK-20-26-10-10



ORDER CODE

WPH – □ – □ – □ – □ – □ – □

Housing diameter	
40 mm, shaft diameter 6 mm	M
60 mm, shaft diameter 10 mm	-

Measurement range in degree	
0...20, 0...30, 0...45, 0...60, 0...75, 0...90, 0...105, 0...120, 0...135, 0...150, 0...165, 0...180, 0...195, 0...210, 0...225, 0...240, 0...255, 0...270, 0...285, 0...300, 0...315, 0...330, 0...345, 0...360	e. g. 45 for 0...45

Output signal	
Voltage 0.5...4.5 V	4,5V
Voltage 0...5 V	5V
Voltage 0...10 V	10V
Current 4...20 mA	420A

Counting direction	
Clockwise	CW
Counter clockwise	CCW

Connection	
Connector output M12, axial	SA12
Cable output, axial, 2 m	KA02
Cable output, axial, 5 m	KA05
Cable output, axial, 10 m	KA10

	Version
-	Standard
O	Sensor with options

Option	**Description**
WP-L20	Improved linearity 0.2 %
WP-IP64	Protection class shaft side IP64
WP-IP67	Protection class shaft side IP67
WP-CO	Corrosion protection
WP-T40	Temperature range -40...+85 °C
WP-H120	Temperature range -20...+120 °C

Option	**Not combinable with**
WP-L20	Measurement ranges <45°
WP-IP64	WP-T40, WP-IP67
WP-IP67	WP-H120, WP-IP64
WP-CO	WP-H120
WP-T40	WP-IP64, WP-H120
WP-H120	10V, 420A, SA12, WP-IP67, WP-CO, WP-T40

ACCESSORIES

Cable with mating connector M12 (female), 4 poles, shielded, IP67	
K4P2M-S-M12	2 m, straight connector
K4P5M-S-M12	5 m, straight connector
K4P10M-S-M12	10 m, straight connector
K4P2M-SW-M12	2 m, angular connector
K4P5M-SW-M12	5 m, angular connector
K4P10M-SW-M12	10 m, angular connector

Mating connector M12 (female), 4 poles, shielded, IP67	
D4-G-M12-S	straight, M12 for self assembly
D4-W-M12-S	angular, M12 for self assembly

Couplings	
MBK-15.5-23-06-06	Metal bellow coupling, 2 x Ø 6 mm
MBK-20-26-06-10	Metal bellow coupling, Ø 6 mm, Ø 10 mm
MBK-20-26-10-10	Metal bellow coupling, 2 x Ø 10 mm

Digital displays for sensors with analog output, 2 channel	
WAY-AX-S	touch screen, supply: 18...30 VDC
WAY-AX-AC	touch screen, supply: 115...230 VAC

For more information and options please refer to the WAY-AX data sheet.

Subject to change without prior notice.

WayCon Positionsmesstechnik GmbH
Email: info@waycon.de
Internet: www.waycon.biz

Headquarters Munich
Siemensstr. 5
85521 Ottobrunn
Tel. +49 (0)89 67 97 13-0

Office Cologne
Auf der Pehle 1
50321 Brühl
Tel. +49 (0)89 67 97 13-100