

Online Data Sheet

Encoder WDG 58B

www.wachendorff-automation.com/wdg58b

Wachendorff Automation

... systems and encoders

- Complete systems
- Industrial rugged encoders to suit your application
- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
- Made in Germany
- Worldwide distributor network

Encoder WDG 58B



- Rugged industrial standard encoder
- Up to 25000 PPR by use of high grad electronics
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Optional: -40 °C up to +80 °C
Protection to IP67 all around

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Resolution

Max. pulses per revolution up to 25000 PPR
PPR

Mechanical Data

Housing

Flange	clamping flange
Flange material	aluminium
Housing cap	aluminium, powder coated
Housing	Ø 58 mm
Cam mounting	pitch 69 mm

Shaft(s)

Shaft material stainless steel
Starting torque approx. 1 Ncm at ambient temperature

Shaft	Ø 10 mm
Shaft length	L: 20 mm
Max. Permissible shaft loading radial	220 N
Max. Permissible shaft loading axial	120 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	1 x 10 ⁹ revs. at 100 % rated shaft load 1 x 10 ¹⁰ revs. at 40 % rated shaft load 1 x 10 ¹¹ revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 100 mA 5 VDC up to 30 VDC: max. 70 mA 10 VDC up to 30 VDC: max. 100 mA
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Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 V _{ss} sin/cos
Pulse frequency	TTL 5000 ppr: max. 200 kHz HTL 5000 I/U: max. 200 kHz TTL 5000 ppr: max. 2 MHz HTL 5000 ppr: max. 600 kHz 1 V _{ss} sin/cos: max. 100 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel @ 1 V _{ss} sin/cos: min. 120 Ohm
Circuit protection	10 VDC up to 30 VDC, HTL only

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	50 % ± max. 7 %

General Data

Weight	approx. 250 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65
Operating temperature	-20 °C up to +80 °C 1 V _{ss} : -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

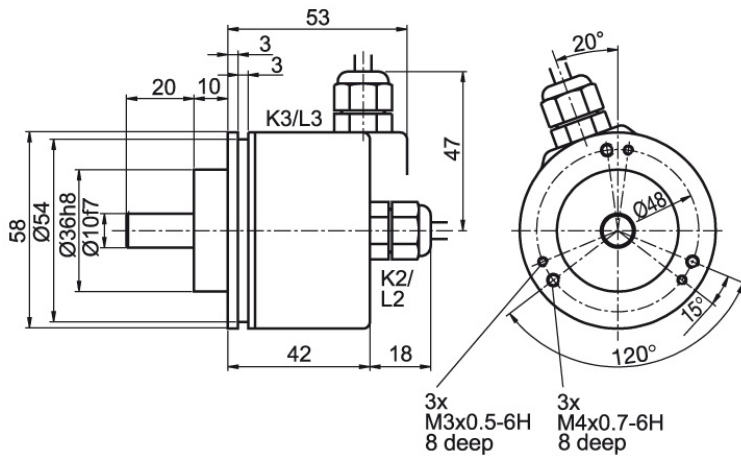
More Information

General technical data

<http://www.wachendorff-automation.com/gtd>

Options

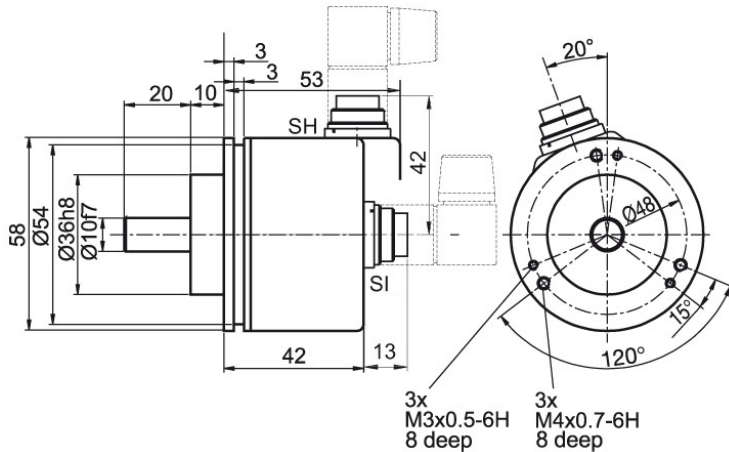
<http://www.wachendorff-automation.com/acc>

Cable connector K2, K3, L2, L3 with 2 m cable













Description	ABN inv. poss.
K2 axial, shield not connected	•
K3 radial, shield not connected	•
L2 axial, shield connected to encoder housing	•
L3 radial, shield connected to encoder housing	•

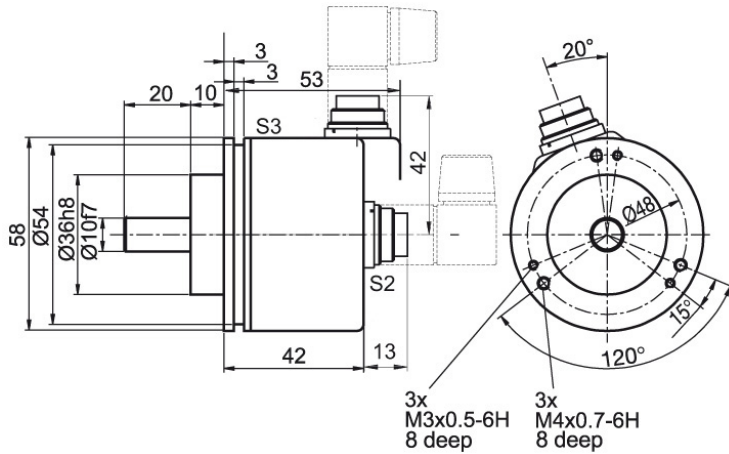
Assignments					
	K2, K3, L2, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, L3
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	WH	WH	WH	WH	WH
+UB	BN	BN	BN	BN	BN
A	GN	GN	GN	GN	GN
B	YE	YE	YE	YE	GY
N	GY	GY	GY	GY	-
Light reserve warning	PK	-	PK	-	-
A inv.	-	-	RD	RD	YE
B inv.	-	-	BK	BK	PK
N inv.	-	-	VT	VT	-
Shield	flex	flex	flex	flex	flex

Connector (M16x0.75) SI, SH, 5-, 6-, 8-, 12-pin



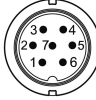
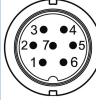
Description	ABN inv. poss.
SI5 axial, 5-pin, shield connected to encoder housing	-
SH5 radial, 5-pin, shield connected to encoder housing	-
SI6 axial, 6-pin, shield connected to encoder housing	-
SH6 radial, 6-pin, shield connected to encoder housing	-
SI8 axial, 8-pin, shield connected to encoder housing	•
SH8 radial, 8-pin, shield connected to encoder housing	•
SI12 axial, 12, shield connected to encoder housing	•
SH12 radial, 12, shield connected to encoder housing	•

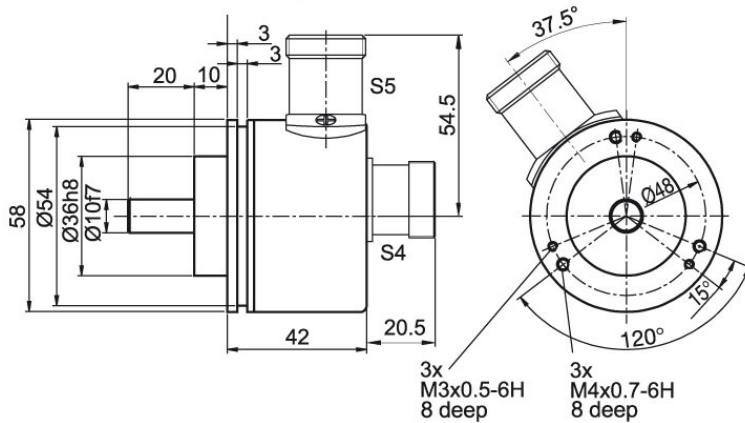
Assignments	SI5, SH5	SI6, SH6	SI6, SH6	SI8, SH8	SI8, SH8	SI8, SH8	SI12, SH12	SI12, SH12	SI12, SH12	SI12, SH12	SI12, SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	8-pin	12	12	12	12	12
											
Circuit	F05, H05, F24, H24, H30	G05, G24	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	1	6	6	1	1	1	K, L	K, L	K, L	K, L	K, L
+UB	2	1	1	2	2	2	M, B	M, B	M, B	M, B	M, B
A	3	2	2	3	3	3	E	E	E	E	E
B	4	4	4	4	4	4	H	H	H	H	H
N	5	3	3	5	5	-	C	C	C	C	-
Light reserve warning	-	5	-	-	-	-	G	-	G	-	-
A inv.	-	-	-	-	6	6	-	-	F	F	F
B inv.	-	-	-	-	7	7	-	-	A	A	A
N inv.	-	-	-	-	8	-	-	-	D	D	-
n. c.	-	-	5	6, 7, 8	-	5, 8	A, D, F, J	A, D, F, G, J	J	G, J	D, G, J
Shield	-	-	-	-	-	-	-	-	-	-	-

Connector (M16x0.75) S2, S3, 7-pin

Description
ABN inv. poss.

S2	axial, 7-pin, shield connected to encoder housing	-
S3	radial, 7-pin, shield connected to encoder housing	-

Assignments






	S2, S3 7-pin	S2, S3 7-pin
		
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	1	1
+UB	2	2
A	3	3
B	4	4
N	5	5
Light reserve warning	6	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	7	6, 7
Shield	-	-

Connector (M23) S4, S5, 12-pin

Description
ABN inv. poss.

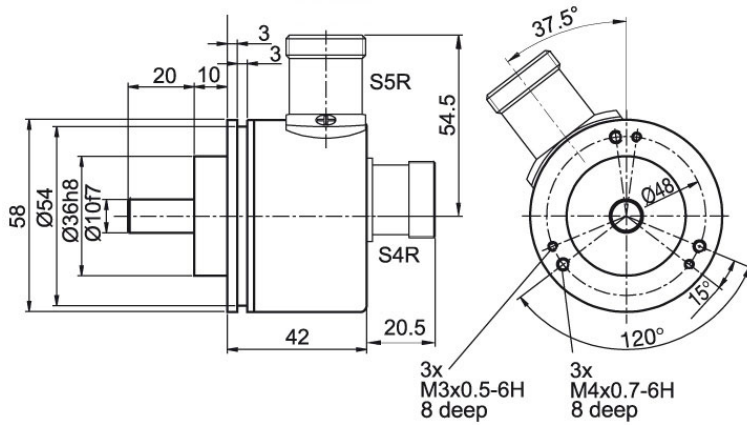
- S4** axial, 12, shield connected to encoder housing
- S5** radial, 12, shield connected to encoder housing

-
-

Assignments

	S4, S5	S4, S5	S4, S5	S4, S5	S4, S5
	12	12	12	12	12
					
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10	10
+UB	12	12	12	12	12
A	5	5	5	5	5
B	8	8	8	8	8
N	3	3	3	3	-
Light reserve warning	11	-	11	-	-
A inv.	-	-	6	6	6
B inv.	-	-	1	1	1
N inv.	-	-	4	4	-
n. c.	1, 2, 4, 6, 7, 9	1, 2, 4, 6, 7, 9, 11	2, 7, 9	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	-	-	-	-	-

Connector (M23) S4R, S5R, 12-pin (clockwise)

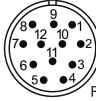
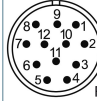
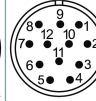
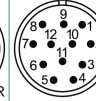
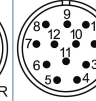


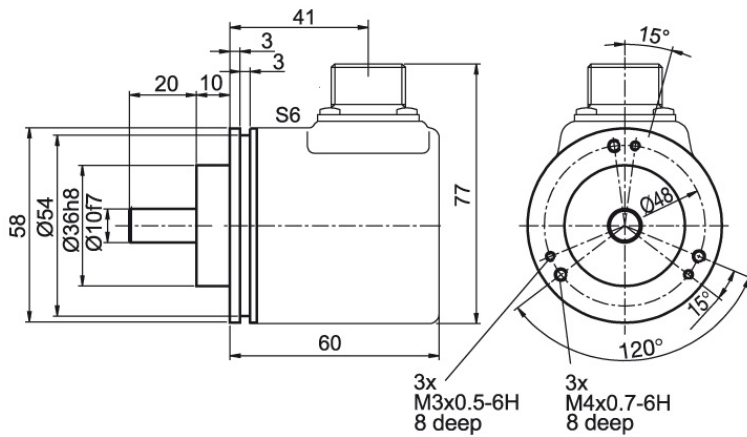
Description

ABN inv. poss.


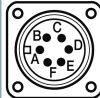
- S4R** axial, 12, shield connected to encoder housing
- S5R** radial, 12, shield connected to encoder housing

-
-

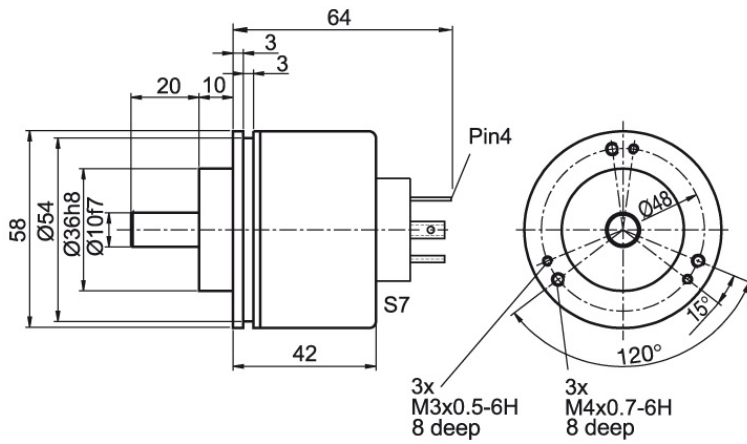
Assignments					
	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R
	12	12	12	12	12
					
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10	10
+UB	12	12	12	12	12
A	5	5	5	5	5
B	8	8	8	8	8
N	3	3	3	3	-
Light reserve warning	11	-	11	-	-
A inv.	-	-	6	6	6
B inv.	-	-	1	1	1
N inv.	-	-	4	4	-
n. c.	1, 2, 4, 6, 7, 9	1, 2, 4, 6, 7, 9, 11	2, 7, 9	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	-	-	-	-	-

MIL-connector S6, 6-pin

Description
ABN inv. poss.
S6 radial, 6-pin,

-

Assignments		
	S6 6-pin	S6 6-pin
		
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	A	A
+UB	F	F
A	C	C
B	B	B
N	D	D
Light reserve warning	E	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	-	E
Shield	-	-

Valve-connector S7, 4-pin




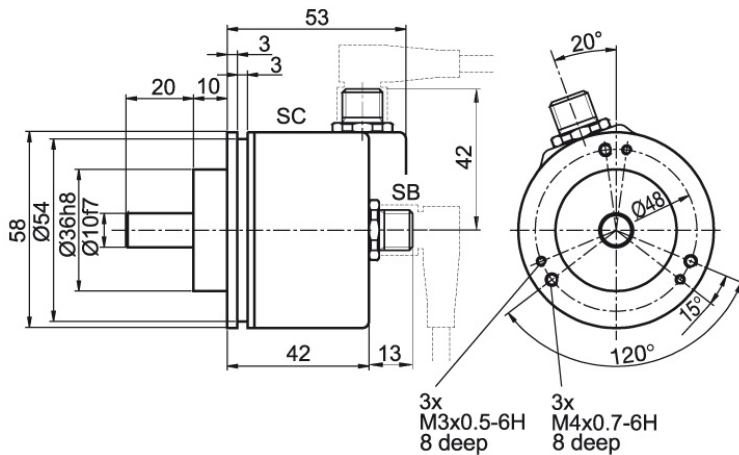
Description

ABN inv. poss.




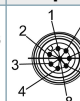



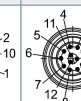
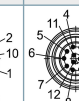
S7 axial, 4-pin, shield connected to encoder housing

-

Assignments	
	S7
	4-pin
	
Circuit	F05, H05, F24, H24, H30
GND	1
+UB	2
A	3
B	4
N	-
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	-
Shield	-

Sensor-connector (M12x1) SB, SC, 4-, 5-, 8-, 12-pin


Description	ABN inv. poss.
SB4 axial, 4-pin, shield connected to encoder housing	-
SC4 radial, 4-pin, shield connected to encoder housing	-
SB5 axial, 5-pin, shield connected to encoder housing	-
SC5 radial, 5-pin, shield connected to encoder housing	-
SB8 axial, 8-pin, shield connected to encoder housing	•
SC8 radial, 8-pin, shield connected to encoder housing	•
SB12 axial, 12, shield connected to encoder housing	•
SC12 radial, 12, shield connected to encoder housing	•

Assignments	SB4, SC4	SB5, SC5	SB8, SC8	SB8, SC8	SB8, SC8	SB12, SC12	SB12, SC12	SB12, SC12	SB12, SC12
	4-pin	5-pin	8-pin	8-pin	8-pin	12	12	12	12
									
Circuit	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30
GND	3	3	1	1	1	3	3	3	3
+UB	1	1	2	2	2	1	1	1	1
A	2	4	3	3	3	4	4	4	4
B	4	2	4	4	5	6	6	6	6
N	-	5	5	5	-	8	8	8	8
Light reserve warning	-	-	-	-	-	5	-	5	-
A inv.	-	-	-	6	4	-	-	9	9
B inv.	-	-	-	7	6	-	-	7	7
N inv.	-	-	-	8	-	-	-	10	10
n. c.	-	-	6, 7, 8	-	7, 8	2, 7, 9, 10, 11, 12	2, 5, 7, 9, 10, 11, 12	2, 11, 12	2, 5, 11, 12
Shield	-	-	-	-	-	-	-	-	-

Options

Low temperature

The encoder WDG 58B with the output circuit types F24, G24, H24, I24, P24, R24, F05, G05, I05, P05, 245, 524, 645 is also available with the extended temperature range -40 °C up to +80 °C [-40 °F up to +176 °F] (measured at the flange).

Order key

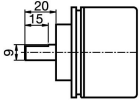
ACA

Shaft with flat

The encoder WDG 58B can be supplied with a shaft with flat.

Order key

AAF



Low-friction bearings

The encoder WDG 58B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.5 Ncm and the protection class at the shaft input to IP50.

Order key

AAC

Cable length

The encoder WDG 58B can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see www.wachendorff-automation.com/atd

Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Example: 3 m cable = 030

Order key

XXX = Decimeter

IP67 Shafts sealed to IP67 (not for 1 Vss Sin/Cos)

The encoder WDG 58B can be supplied in a full IP67 version.

Order key

AAO

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 100 N

Permitted Shaft-Loading, radial: 110 N

Max. PPR: 2500 ppr

Starting-torque: approx. 4 Ncm at ambient temperature

Example Order No.	Type				Your encoder
WDG 58B	WDG 58B				WDG 58B
Pulses per revolution PPR I/U (PPR):					
5000	2, 5, 10, 15, 20, 24, 25, 30, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 236, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 625, 720, 750, 768, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000, 10000, 12500, 20000, 25000 1 Vss Sin/Cos only 1024, 2048 Other PPRs on request				
Channels:					
ABN	AB, ABN (SIN: AB)				
Output circuit					
G24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key
	up to 2500	5 - 30	HTL	-	H30
		5 - 30	HTL inverted	-	R30
	up to 5000	4.75 - 5.5	TTL	•	G05
		4.75 - 5.5	TTL	-	H05
		4.75 - 5.5	TTL, RS422 comp., inverted	•	I05
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05
		10 - 30	HTL	•	G24
		10 - 30	HTL	-	H24
		10 - 30	HTL inverted	•	I24
		10 - 30	HTL inverted	-	R24
		10 - 30	TTL, RS422 comp., inverted	•	524
		10 - 30	TTL, RS422 comp., inverted	-	245
	10000 up to 25000	4.75 - 5.5	TTL	-	F05
		4.75 - 5.5	TTL, RS422 comp., inverted	-	P05
		10 - 30	HTL	-	F24
		10 - 30	HTL inverted	-	P24
		10 - 30	TTL, RS422 comp., inverted	-	645
	1024, 2048	4.75 - 5.5	1 VSS sin/cos	-	SIN

Electrical connections			
Description	ABN inv. poss.	Order key	
Cable: length (2 m standard)			
axial, shield not connected	•	K2	
axial, shield connected to encoder housing	•	L2	
radial, shield not connected	•	K3	
radial, shield connected to encoder housing	•	L3	
Connector: (shield connected to encoder housing)			
connector, M16x0.75, 5-pin, axial	-	SI5	
connector, M16x0.75, 5-pin, radial	-	SH5	
connector, M16x0.75, 6-pin, axial	-	SI6	
connector, M16x0.75, 6-pin, radial	-	SH6	
connector, M16x0.75, 8-pin, axial	•	SI8	
connector, M16x0.75, 8-pin, radial	•	SH8	
connector, M16x0.75, 12, axial	•	SI12	
connector, M16x0.75, 12, radial	•	SH12	
K2 connector, M16x0.75, 7-pin, axial	-	S2	
connector, M16x0.75, 7-pin, radial	-	S3	
connector, M23, 12, axial	•	S4	
connector, clockwise pin count, M23, 12, axial	•	S4R	
connector, M23, 12, radial	•	S5	
connector, clockwise pin count, M23, 12, radial	•	S5R	
connector, MIL, 6-pin, radial	-	S6	
connector, Valve, 4-pin, axial	-	S7	
sensor-connector, M12x1, 4-pin, axial	-	SB4	
sensor-connector, M12x1, 4-pin, radial	-	SC4	
sensor-connector, M12x1, 5-pin, axial	-	SB5	
sensor-connector, M12x1, 5-pin, radial	-	SC5	
sensor-connector, M12x1, 8-pin, axial	•	SB8	
sensor-connector, M12x1, 8-pin, radial	•	SC8	
sensor-connector, M12x1, 12, axial	•	SB12	
sensor-connector, M12x1, 12, radial	•	SC12	
Options			
Description		Order key	
Without option		Empty	
Low temperature		ACA	
Shaft with flat		AAF	
Low-friction bearings		AAC	
IP67		AAO	
Cable length		XXX = Decimeter	

Example Order No.=	WDG 58B	5000	ABN	G24	K2							Your encoder
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For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
http://www.wachendorff-automation.com/distributors_worldwide.html



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