



Online Data sheet

Encoder WDGI 58B

www.wachendorff-automation.com/wdgi58bm

Wachendorff Automation

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- Complete systems
- Industrial rugged encoders to suit your application
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- Maximum permissible loads
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Encoder WDGI 58B

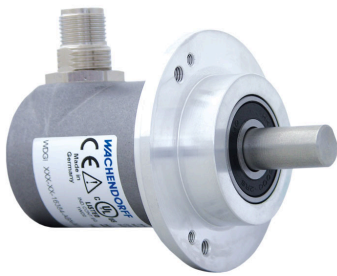


Illustration similar



- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- Optional:
-40 °C up to +85 °C [-40 °F up to 185 °F],
Protection to IP67 all around,
Pressure equalising membrane

www.wachendorff-automation.com/wdgi58bm

Resolution	
Pulses per revolution PPR	1 PPR up to 16384 PPR
Mechanical Data	
Flange	clamping flange
Flange material	aluminum
Housing material	Stainless steel or die cast aluminum, powder coated (only M16 and M23 plugs)
Flange diameter	Ø 58 mm [Ø 2.283"]
Cam mounting	pitch 69 mm [2.717 inches] (Accessory SP-3-00)
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm [1.416 in-ozf] at ambient temperature
Shaft	Ø 6 mm [Ø 0.236"]
Advice	Attention: No option AAO = full IP67 version
Shaft length	L: 12 mm [0.472"]
Max. Permissible shaft loading radial	125 N [12.746 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 8 mm [Ø 0.315"]
Advice	Attention: No option AAO = full IP67 version
Shaft length	L: 19 mm [0.748"]
Max. Permissible shaft loading radial	125 N [12.746 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 9.525 mm [Ø 3/8"] Order No: 4Z
Advice	Attention: No option AAO = full IP67 version
Shaft length	L: 20 mm [0.787"]
Max. Permissible shaft loading radial	220 N [22.433 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 10 mm [Ø 0.394"]
Shaft length	L: 20 mm [0.787"]
Max. Permissible shaft loading radial	220 N [22.433 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]

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	2200 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 30 VDC: typ. 40 mA
Operating principle	magnetic
Output circuit	HTL (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)
Pulse frequency	HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	yes
Accuracy	
Phase offset	90° ± max. 7.5 % of the period duration
pulse-/pause-ratio	50 % ± max. 7 %
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s ² (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s ² (6 ms)
Electrical Safety:	according DIN VDE 0160

Duty information

Customs tariff number: 90318020

Country of origin: Germany

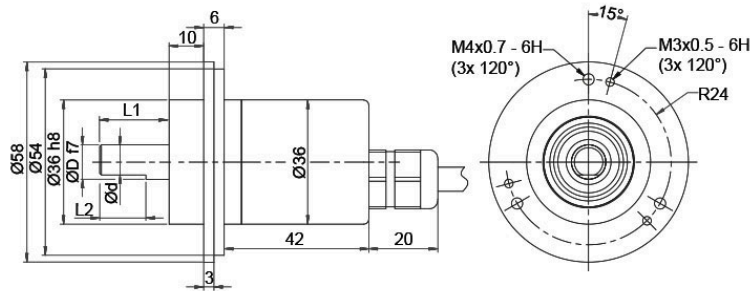
General Data

Weight approx. 250 g [8.818 oz]

Connections cable or connector outlet

Protection rating (EN 60529) Housing: IP65, IP67;
shaft sealed: IP65Operating temperature Connector: -40 °C up to +85 °C,
Cable: -20 °C up to +80 °C (Option
ACA: -40 °C up to +85 °C).
Connector: -40 °F up to +185 °F,
Cable: -4 °F up to +176 °F, Option
ACA: -40 °F up to +185 °FStorage temperature Connector: -40 °C up to +85 °C,
Cable: -30 °C up to +80 °C (Option
ACA: -40 °C up to +85 °C)
Connector: -40 °F up to +185 °F,
cable: -22 °F up to +176 °F, (Option
ACA: -40 °F up to +185 °F)**More Information**General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>Options
<http://www.wachendorff-automation.com/acc>

WDGI 58B: Cable connection L2, axial, with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

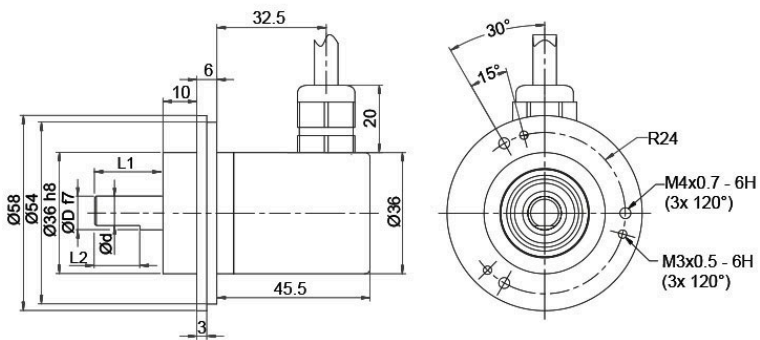
ABN inv. poss.

L2 axial, shield connected to encoder housing

•

Assignments		
	L2	L2
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
-	-	-
A inv.	-	RD
B inv.	-	BK, (BU at ACA)
N inv.	-	VT
Shield	flex	flex

WDGI 58B: Cable connection L3, radial, with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

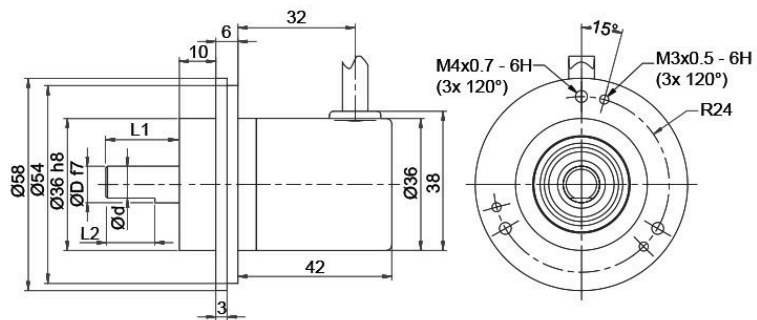
L3 radial, shield connected to encoder housing

ABN inv. poss.

•

Assignments		
	L3	L3
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
-	-	-
A inv.	-	RD
B inv.	-	BK, (BU at ACA)
N inv.	-	VT
Shield	flex	flex

WDGI 58B: Cable K1 (IP40) radial with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

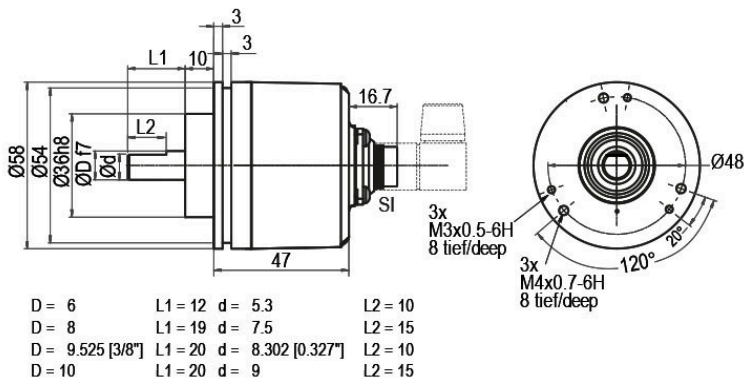
ABN inv. poss.

K1 radial, shield not connected (IP40)

•

Assignments		
	K1	K1
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
-	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

WDGI 58B: Connector (M16x0.75) SI, axial, 5-, 6-, 8-, 12-pin

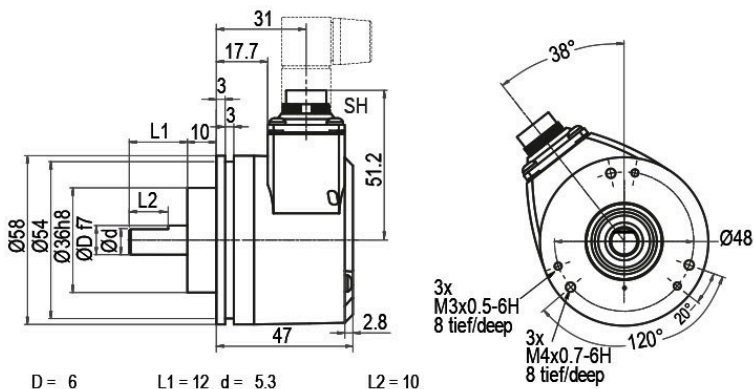


Alle Abmessungen in mm / All dimensions in mm

Description	ABN inv. poss.
SI5 axial, 5-pin, Connector connected to encoder housing	-
SI6 axial, 6-pin, Connector connected to encoder housing	-
SI8 axial, 8-pin, Connector connected to encoder housing	•
SI12 axial, 12-pin, Connector connected to encoder housing	•

Assignments	SI5 5-pin	SI6 6-pin	SI8 8-pin	SI8 8-pin	SI12 12-pin	SI12 12-pin
Circuit	N35	N35	N35	M35	N35	M35
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
-	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7	-	A
N inv.	-	-	-	8	-	D
n. c.	-	5	6, 7, 8	-	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-

WDGI 58B: Connector (M16x0.75) SH, radial, 5-, 6-, 8-, 12-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

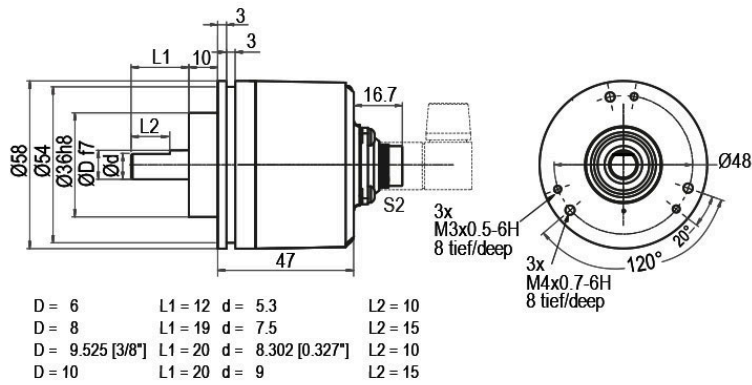
ABN inv. poss.

SH5	radial, 5-pin, Connector connected to encoder housing	-
SH6	radial, 6-pin, Connector connected to encoder housing	-
SH8	radial, 8-pin, Connector connected to encoder housing	•
SH12	radial, 12-pin, Connector connected to encoder housing	•

Assignments

	SH5 5-pin	SH6 6-pin	SH8 8-pin	SH8 8-pin	SH12 12-pin	SH12 12-pin
Circuit	N35	N35	N35	M35	N35	M35
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
-	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7	-	A
N inv.	-	-	-	8	-	D
n. c.	-	5	6, 7, 8	-	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-

WDGI 58B: Connector (M16x0.75) S2, axial, 7-pin



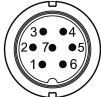
Alle Abmessungen in mm / All dimensions in mm

Description

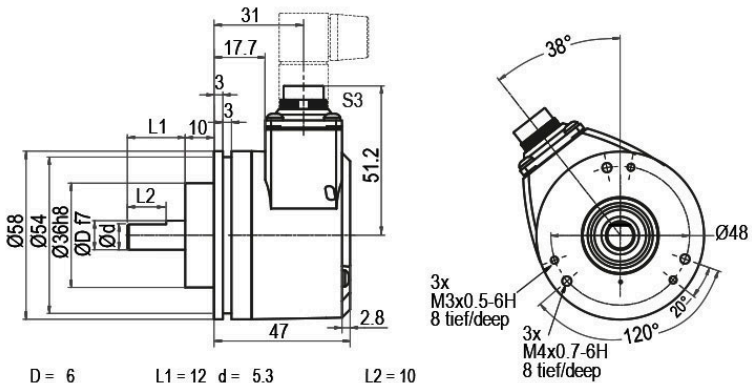
ABN inv. poss.

S2 axial, 7-pin, Connector connected to encoder housing

-

Assignments	
	S2
	7-pin
	
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
-	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

WDGI 58B: Connector (M16x0.75) S3, radial, 7-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

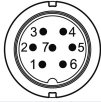
Alle Abmessungen in mm / All dimensions in mm

Description

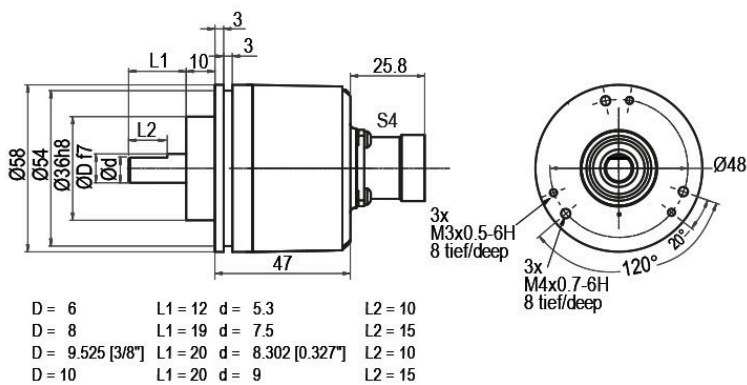
ABN inv. poss.

S3 radial, 7-pin, Connector connected to encoder housing

-

Assignments	
	S3
	7-pin
	
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
-	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

WDGI 58B: Connector (M23) S4, axial, 12-pin



Alle Abmessungen in mm / All dimensions in mm

Description

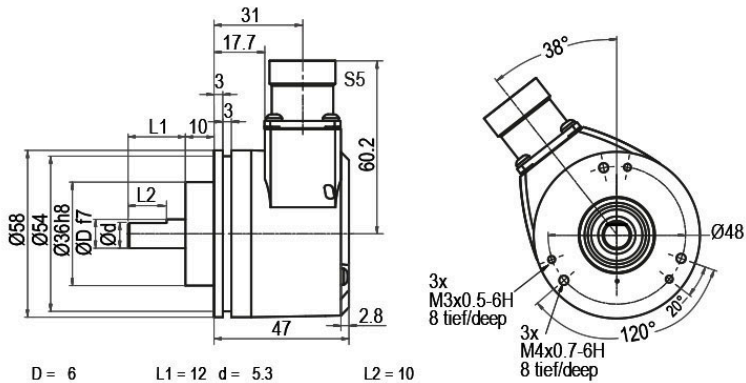
ABN inv. poss.

S4 axial, 12-pin, Connector connected to encoder housing

•

Assignments		
	S4	S4
	12-pin	12-pin
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

WDGI 58B: Connector (M23) S5, radial, 12-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

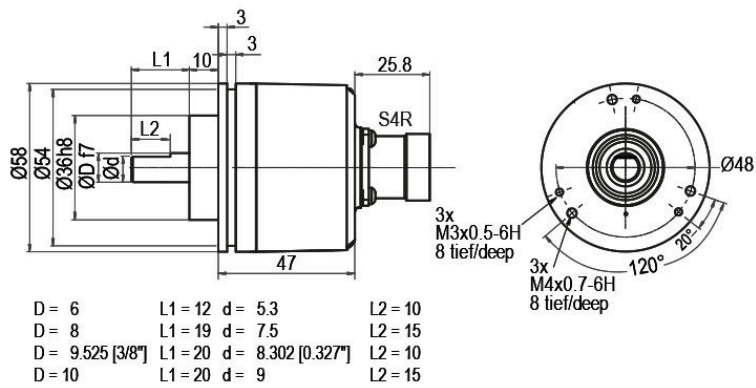
ABN inv. poss.

S5 radial, 12-pin, Connector connected to encoder housing

•

Assignments		
	S5	S5
	12-pin	12-pin
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

WDGI 58B: Connector (M23) S4R, axial, 12-pin (clockwise)



Alle Abmessungen in mm / All dimensions in mm

Description

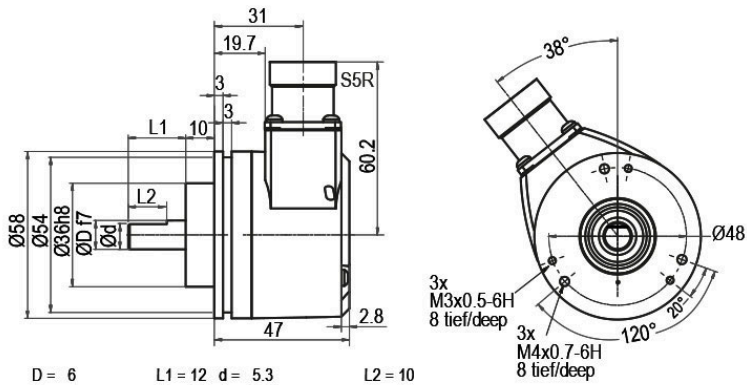
ABN inv. poss.

S4R axial, 12-pin, Connector connected to encoder housing

•

Assignments		
	S4R 12-pin	S4R 12-pin
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

WDGI 58B: Connector (M23) S5R, radial, 12-pin (clockwise)



D = 6 L1 = 12 d = 5.3 L2 = 10
 D = 8 L1 = 19 d = 7.5 L2 = 15
 D = 9.525 [3/8"] L1 = 20 d = 8.302 [0.327"] L2 = 10
 D = 10 L1 = 20 d = 9 L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

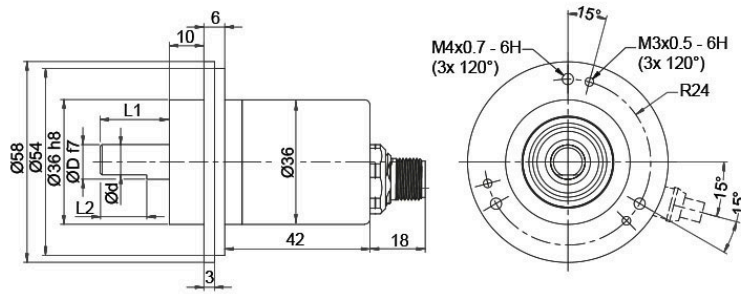
ABN inv. poss.

S5R radial, 12-pin, Connector connected to encoder housing

•

Assignments		
	S5R	S5R
	12-pin	12-pin
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

WDGI 58B: Sensor-connector (M12x1) SB, axial, 5-, 8-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

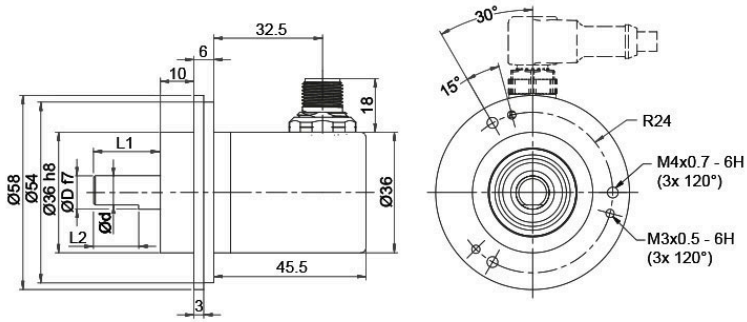
ABN inv. poss.

SB5	axial, 5-pin, Connector connected to encoder housing	-
SB8	axial, 8-pin, Connector connected to encoder housing	•

Assignments

	SB5	SB8
	5-pin	8-pin
Circuit	N35	M35
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
-	-	-
A inv.	-	6
B inv.	-	7
N inv.	-	8
n. c.	-	-
Shield	-	-

WDGI 58B: Sensor-connector (M12x1) SC, radial, 5-, 8-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

Alle Abmessungen in mm / All dimensions in mm

Description

ABN inv. poss.

SC5	radial, 5-pin, Connector connected to encoder housing	-
SC8	radial, 8-pin, Connector connected to encoder housing	•

Assignments

	SC5	SC8
	5-pin	8-pin
Circuit	N35	M35
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
-	-	-
A inv.	-	6
B inv.	-	7
N inv.	-	8
n. c.	-	-
Shield	-	-

Options

Low-friction bearings	Order key
-----------------------	-----------

The encoder WDG1 58B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.5 Ncm [0.708 in-ozf] and the protection class at the shaft input to IP50.

AAC

Shafts sealed to IP67, only with 10 mm [0.394"] shaft	Order key
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The encoder WDG1 58B can be supplied in a IP67 version.
(full IP67 only connection SB, SC, L2 or L3 version; not cable connection K1 = IP40).
Max. RPM: 3500 min⁻¹
Permitted Shaft-Loading: axial 100 N [10.197 kp]; radial 110 N [11.216 kp]
Starting-torque: approx. 4 Ncm [5.664 in-ozf] at ambient temperature

AAO

Low temperature	Order key
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The encoder WDG1 58B with the output circuit types M35, N35 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange).

ACA

Pressure equalising membrane	Order key
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The WDG1 58B shaft encoder is also optionally available with a pressure equalising membrane. This prevents water from penetrating into the encoder housing in the case of high air humidity.
The IP67 protection level, temperature range and salt spray resistance are maintained.
Resistant to chemicals and solvents in accordance with DIN EN ISO 2812-1.

ACR

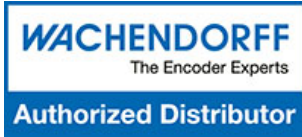
Cable length	Order key
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The encoder WDG1 58B can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see <https://www.wachendorff-automation.com/download-gtd-incremental-encoders/>
Please extend the standard order code with a three figure number, specifying the cable length in decimetres.
Example: 5 m cable = 050

XXX = Decimeter

Example Order No.	Type					Your encoder
WDGI 58B	WDGI 58B					WDGI 58B
	Shaft					
10	06; 08; 4Z; 10					
	Pulses per revolution PPR:					
16384	1-16384 Other PPRs on request					
	Channels:					
ABN	AB, ABN					
	Output circuit					
M35	Resolution PPR	Power supply VDC	Output circuit	-	Order key	
	1-16384	4.75 - 30	HTL (TTL at 5 VDC)	-	N35	
		4.75 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	M35	
	Electrical connections					
L2	Description			ABN inv. poss.	Order key	
	Cable: length (2 m standard, WDG 58T: 1 m)					
	radial, shield not connected (IP40)			•	K1	
	axial, shield connected to encoder housing			•	L2	
	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-pin, axial			•	SI12	
	connector, M16x0.75, 12-pin, radial			•	SH12	
	connector, M16x0.75, 7-pin, axial			-	S2	
	connector, M16x0.75, 7-pin, radial			-	S3	
	connector, M23, 12-pin, axial			•	S4	
	connector, M23, 12-pin, radial			•	S5	
	connector, clockwise pin count, M23, 12-pin, axial			•	S4R	
	connector, clockwise pin count, M23, 12-pin, radial			•	S5R	
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		
	Options					
	Description			Order key		
	Low-friction bearings			AAC		
	Shafts sealed to IP67, only with 10 mm [0.394"] shaft			AAO		
	Low temperature			ACA		
	Pressure equalising membrane			ACR		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDGI 58B	10	16384	ABN	M35	L2		WDGI 58B						Your encoder
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For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
<https://www.wachendorff-automation.com/contact-en/wachendorff-world-wide/>

WACHENDORFF

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E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

