



# Online Data sheet

## Encoder WDGI 58B

[www.wachendorff-automation.com/wdgi58bm](http://www.wachendorff-automation.com/wdgi58bm)

### **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 WDGI 58B (magnetic)



- Rugged industrial standard encoder
- Housing cap die cast aluminum, with particularly eco-friendly powder coating
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- Optional:  
-40 °C up to +85 °C,  
Protection to IP67 all around,  
Pressure equalising membrane

[www.wachendorff-automation.com/wdgi58bm](http://www.wachendorff-automation.com/wdgi58bm)

Resolution	
Pulses per revolution PPR	up to 1024 PPR

Mechanical Data	
<b>Housing</b>	
Flange	clamping flange
Flange material	aluminum
Housing cap	die cast aluminum, 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 <sup>9</sup> revs. at 100 % rated shaft load 1 x 10 <sup>10</sup> revs. at 40 % rated shaft load 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

Machinery Directive: basic data safety integrity level	
MTTF <sub>d</sub>	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data	
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 40 mA
Output circuit	HTL (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)
Pulse frequency	1024 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel

Circuit protection	no
--------------------	----

Accuracy	
Phase offset	90° ± max. 25% of the period duration
pulse-/pause-ratio	at 1 ppr up to 128 ppr: 50 % ± max. 7 % 129 ppr - 256 ppr: 50 % ± max. 9 % 257 ppr - 512 ppr: 50 % ± max. 13 % 513 ppr - 1024 ppr: 50 % ± max. 18 %

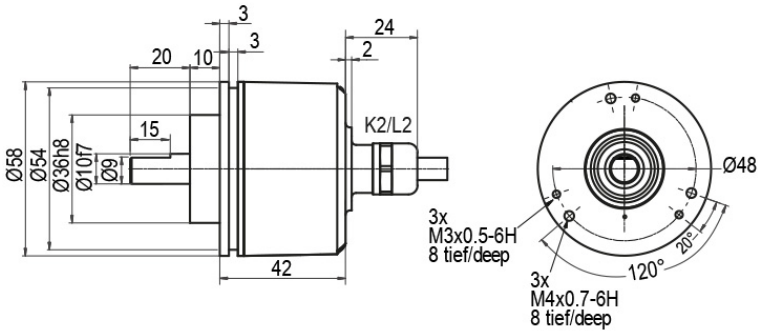
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Design:	according DIN VDE 0160

Duty information	
Customs tariff number:	90318020
Country of origin:	Germany

General Data	
Weight	approx. 250 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	Connector: -40 °C up to +85 °C, cable: -20 °C up to +80 °C, (Option ACA: -40 °C up to +85 °C)
Storage temperature	Connector: -40 °C up to +85 °C, cable: -30 °C up to +80 °C (option ACA: -40 °C up to +85 °C)

More Information	
General technical data and safety instructions <a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a>	
Options <a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a>	

**WDGI 58B: Cable connection K2, L2, axial, with 2 m cable**

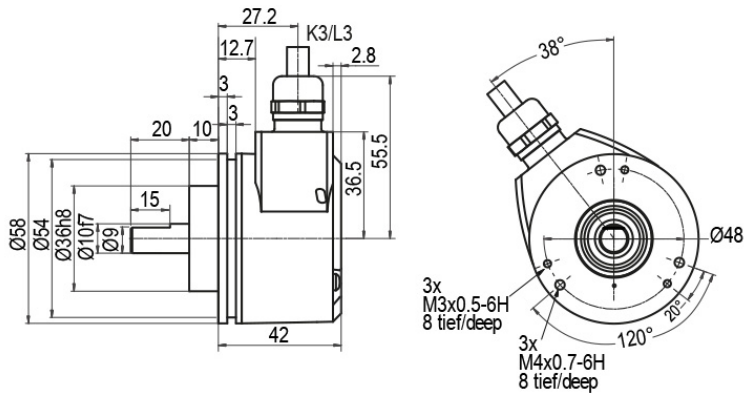


**Description**

		<b>ABN inv. poss.</b>
<b>K2</b>	axial, shield not connected	•
<b>L2</b>	axial, shield connected to encoder housing	•

<b>Assignments</b>		
	<b>K2, L2</b>	<b>K2, L2</b>
<b>Circuit</b>	N35	M35
<b>GND</b>	WH	WH
<b>(+) Vcc</b>	BN	BN
<b>A</b>	GN	GN
<b>B</b>	YE	YE
<b>N</b>	GY	GY
<b>Light reserve warning</b>	-	-
<b>A inv.</b>	-	RD
<b>B inv.</b>	-	BK, (BU at ACA)
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

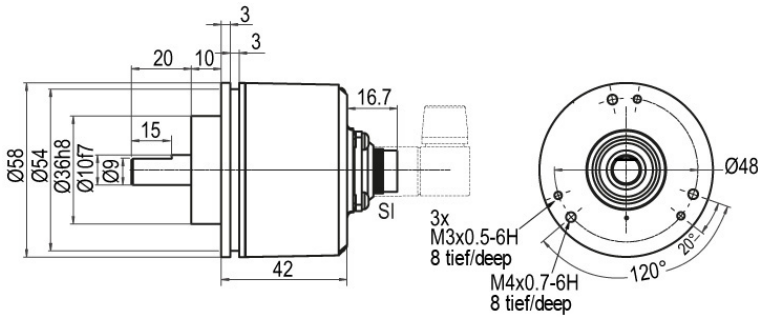
**WDGI 58B: Cable connection K3, L3, radial, with 2 m cable**



Description	ABN inv. poss.
<b>K3</b> radial, shield not connected	•
<b>L3</b> radial, shield connected to encoder housing	•

Assignments		
	K3, L3	K3, L3
<b>Circuit</b>	N35	M35
<b>GND</b>	WH	WH
<b>(+) Vcc</b>	BN	BN
<b>A</b>	GN	GN
<b>B</b>	YE	YE
<b>N</b>	GY	GY
<b>Light reserve warning</b>	-	-
<b>A inv.</b>	-	RD
<b>B inv.</b>	-	BK, (BU at ACA)
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

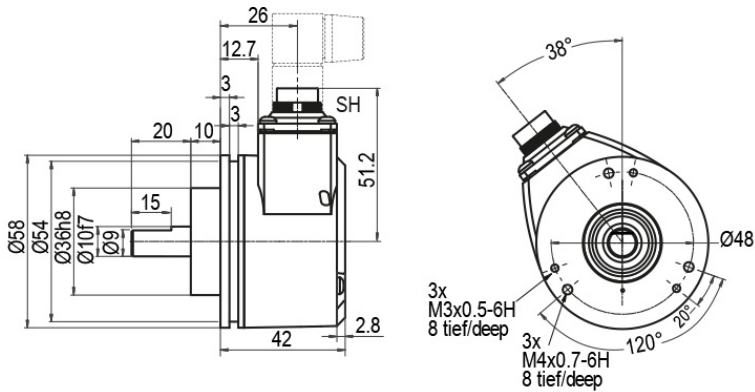
**WDGI 58B: Connector (M16x0.75) SI, axial, 5-, 6-, 8-, 12-pin**



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

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

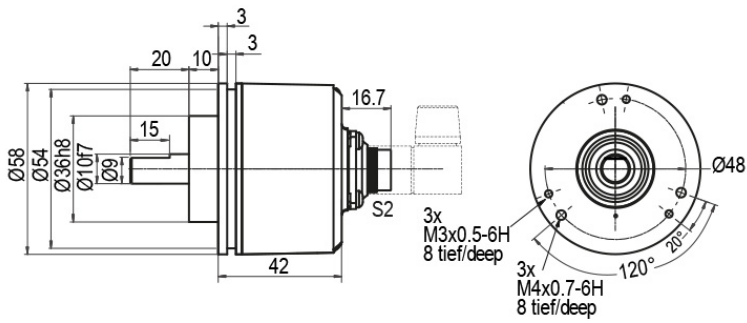
**WDGI 58B: Connector (M16x0.75) SH, radial, 5-, 6-, 8-, 12-pin**



Description	ABN inv. poss.
<b>SH5</b> radial, 5-pin, Connector connected to encoder housing	-
<b>SH6</b> radial, 6-pin, Connector connected to encoder housing	-
<b>SH8</b> radial, 8-pin, Connector connected to encoder housing	•
<b>SH12</b> radial, 12-pin, Connector connected to encoder housing	•

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

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




**Description**

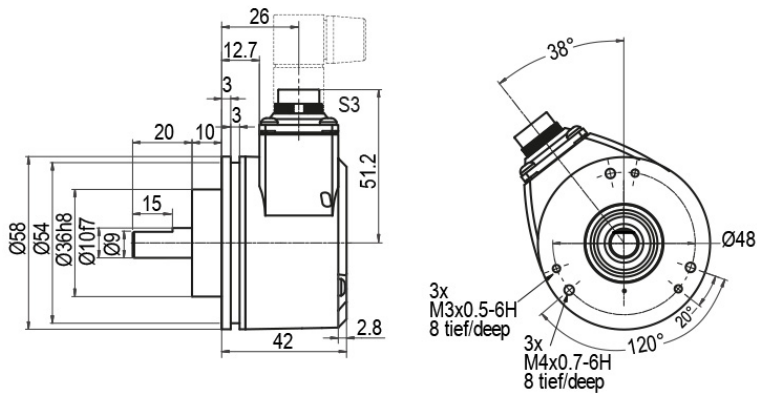
**ABN inv. poss.**

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

-

Assignments	
	<b>S2</b>
	<b>7-pin</b>
	
<b>Circuit</b>	N35
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>Light reserve warning</b>	-
<b>A inv.</b>	-
<b>B inv.</b>	-
<b>N inv.</b>	-
<b>n. c.</b>	6, 7
<b>Shield</b>	-

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



**Description**

**ABN inv. poss.**

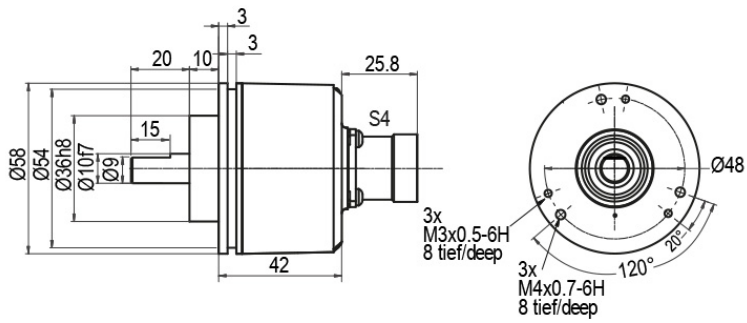
**S3** radial, 7-pin, Connector connected to encoder housing

-

Assignments	
	<b>S3</b>
	<b>7-pin</b>
<b>Circuit</b>	N35
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>Light reserve warning</b>	-
<b>A inv.</b>	-
<b>B inv.</b>	-
<b>N inv.</b>	-
<b>n. c.</b>	6, 7
<b>Shield</b>	-



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



### Description

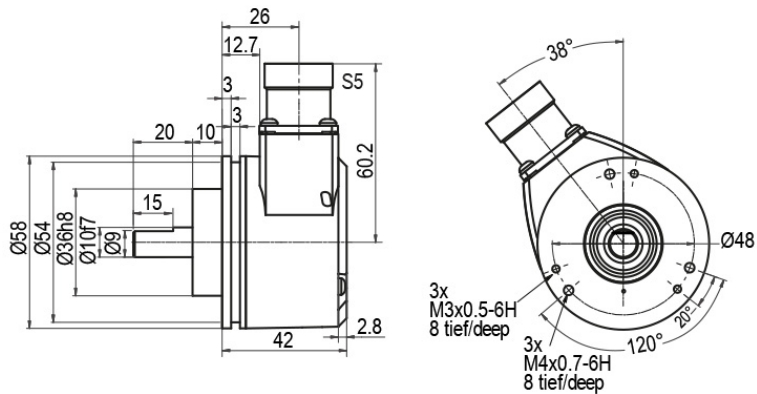
ABN inv. poss.

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

•

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

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



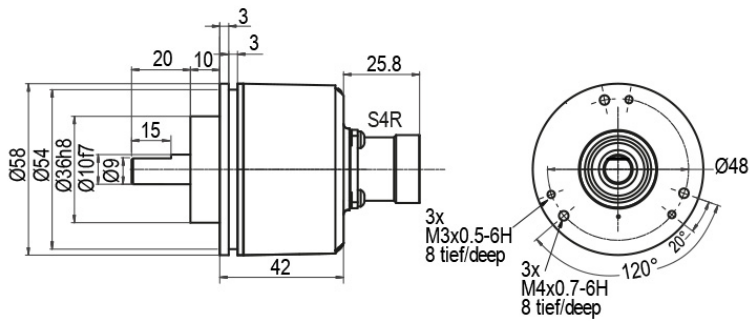
### Description

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

ABN inv. poss.

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

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



### Description

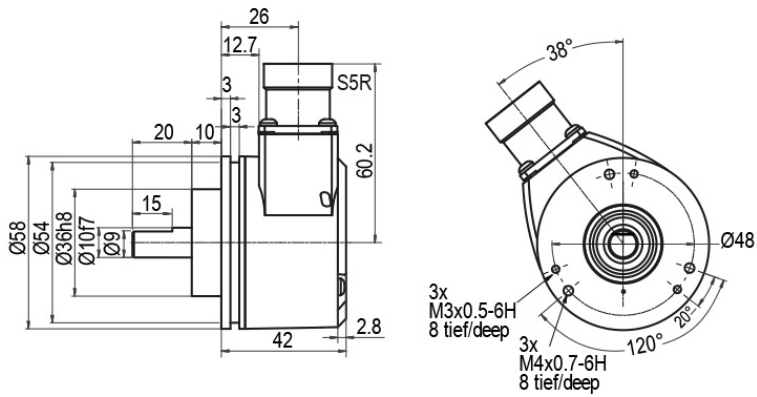
ABN inv. poss.

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

•

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

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



### Description

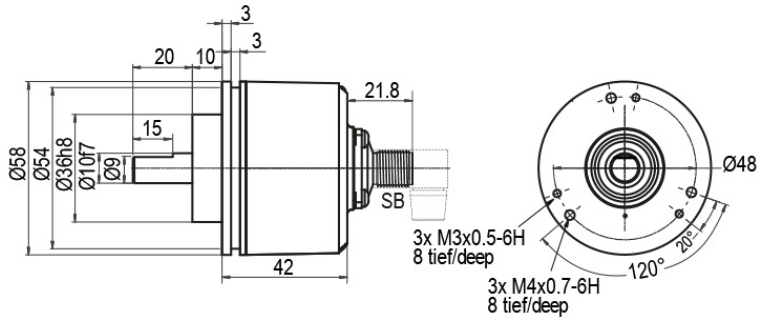
ABN inv. poss.

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

•

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

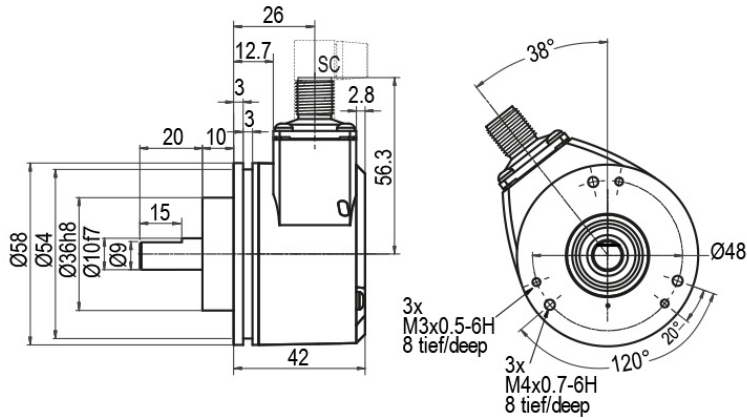
**WDGI 58B: Sensor-connector (M12x1) SB, axial, 4-, 5-, 8-, 12-pin**



Description	ABN inv. poss.
<b>SB4</b> axial, 4-pin, Connector connected to encoder housing	-
<b>SB5</b> axial, 5-pin, Connector connected to encoder housing	-
<b>SB8</b> axial, 8-pin, Connector connected to encoder housing	•
<b>SB12</b> axial, 12-pin, Connector connected to encoder housing	•

Assignments						
	<b>SB4</b>	<b>SB5</b>	<b>SB8</b>	<b>SB8</b>	<b>SB12</b>	<b>SB12</b>
	<b>4-pin</b>	<b>5-pin</b>	<b>8-pin</b>	<b>8-pin</b>	<b>12-pin</b>	<b>12-pin</b>
<b>Circuit</b>	N35	N35	N35	M35	N35	M35
<b>GND</b>	3	3	1	1	3	3
<b>(+) Vcc</b>	1	1	2	2	1	1
<b>A</b>	2	4	3	3	4	4
<b>B</b>	4	2	4	4	6	6
<b>N</b>	-	5	5	5	8	8
<b>Light reserve warning</b>	-	-	-	-	-	-
<b>A inv.</b>	-	-	-	6	-	9
<b>B inv.</b>	-	-	-	7	-	7
<b>N inv.</b>	-	-	-	8	-	10
<b>n. c.</b>	-	-	6, 7, 8	-	2, 5, 7, 9, 10, 11, 12	2, 5, 11, 12
<b>Shield</b>	-	-	-	-	-	-

**WDGI 58B: Sensor-connector (M12x1) SC, radial, 4-, 5-, 8-, 12-pin**



Description	ABN inv. poss.
<b>SC4</b> radial, 4-pin, Connector connected to encoder housing	-
<b>SC5</b> radial, 5-pin, Connector connected to encoder housing	-
<b>SC8</b> radial, 8-pin, Connector connected to encoder housing	•
<b>SC12</b> radial, 12-pin, Connector connected to encoder housing	•

Assignments						
	<b>SC4</b>	<b>SC5</b>	<b>SC8</b>	<b>SC8</b>	<b>SC12</b>	<b>SC12</b>
	<b>4-pin</b>	<b>5-pin</b>	<b>8-pin</b>	<b>8-pin</b>	<b>12-pin</b>	<b>12-pin</b>
<b>Circuit</b>	N35	N35	N35	M35	N35	M35
<b>GND</b>	3	3	1	1	3	3
<b>(+) Vcc</b>	1	1	2	2	1	1
<b>A</b>	2	4	3	3	4	4
<b>B</b>	4	2	4	4	6	6
<b>N</b>	-	5	5	5	8	8
<b>Light reserve warning</b>	-	-	-	-	-	-
<b>A inv.</b>	-	-	-	6	-	9
<b>B inv.</b>	-	-	-	7	-	7
<b>N inv.</b>	-	-	-	8	-	10
<b>n. c.</b>	-	-	6, 7, 8	-	2, 5, 7, 9, 10, 11, 12	2, 5, 11, 12
<b>Shield</b>	-	-	-	-	-	-

## Options

### Low-friction bearings

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 and the protection class at the shaft input to IP50.

### Order key

**AAC**

### IP67 Shafts sealed to IP67

The encoder WDG1 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: 1024 ppr

Starting-torque: approx. 4 Ncm at ambient temperature

### Low temperature

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).

### Order key

**ACA**

### Pressure equalising membrane

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.

### Order key

**ACR**

### Cable length

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 [www.wachendorff-automation.com/atd](http://www.wachendorff-automation.com/atd)

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

Example: 5 m cable = 050

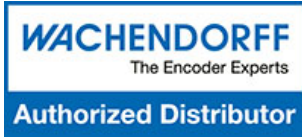
### Order key

**XXX = Decimeter**

Example Order No.	Type					Your encoder
WDGI 58B	WDGI 58B					WDGI 58B
	<b>Shaft</b>					
10	10					
	<b>Pulses per revolution PPR:</b>					
1024	1-1024 Other PPRs on request					
	<b>Channels:</b>					
ABN	AB, ABN					
	<b>Output circuit</b>					
M35	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	<b>Light reserve warning</b>	<b>Order key</b>	
	up to 1024	5 - 30 5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC) HTL (TTL at 5 VDC)	- -	M35 N35	
	<b>Electrical connections</b>					
K2	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>	
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>					
	axial, shield not connected			•	K2	
	axial, shield connected to encoder housing			•	L2	
	radial, shield not connected			•	K3	
	radial, shield connected to encoder housing			•	L3	
	<b>Connector: (shield connected to encoder housing)</b>					
	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, clockwise pin count, M23, 12-pin, axial			•	S4R	
	connector, M23, 12-pin, radial			•	S5	
	connector, clockwise pin count, M23, 12-pin, radial			•	S5R	
	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-pin, axial			•	SB12	
sensor-connector, M12x1, 12-pin, radial			•	SC12		
	<b>Options</b>					
	<b>Description</b>			<b>Order key</b>		
	Low-friction bearings			AAC		
	IP67			AAO		
	Low temperature			ACA		
	Pressure equalising membrane			ACR		
	Without option			Empty		
	Cable length			XXX = Decimeter		

<b>Example Order No.=</b>	WDGI 58B	10	1024	ABN	M35	K2		WDGI 58B						<b>Your encoder</b>
---------------------------	----------	----	------	-----	-----	----	--	----------	--	--	--	--	--	---------------------





For further information please contact our local distributor.  
Here you find a list of our distributors worldwide.  
<https://www.wachendorff-automation.com/contact-sales-en/>

# WACHENDORFF

Wachendorff Automation GmbH & Co. KG  
Industriestrasse 7 • 65366 Geisenheim  
Germany

Phone: +49 67 22 / 99 65 25  
E-Mail: [wdg@wachendorff.de](mailto:wdg@wachendorff.de)  
[www.wachendorff-automation.de](http://www.wachendorff-automation.de)

