WACHENDORFF
The Encoder Experts

Online Data sheet

Encoder WDGI 58D

www.wachendorff-automation.com/wdgi58dm

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

IndustrieROBUST

Encoder WDGI 58D

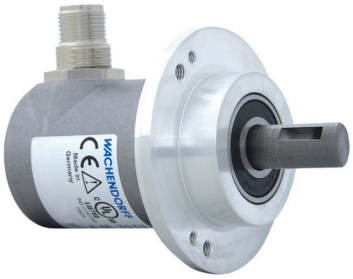


Illustration similar

Heavy duty

c UL us LISTED

- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- High noise immunity
- High shaft load radial 500 N, [50.984 kp], axial 500 N [50.984 kp]
- Maximum mechanical and electrical safety
- Optional: -40 °C up to +85 °C [-40 °F up to +185 °F],
  Pressure equalising membrane

www.wachendorff-automation.com/wdgi58dm

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 12 mm [Ø 0.472"]
Shaft length	L: 25 mm [0.984"]
Max. Permissible shaft loading radial	500 N [50.984 kp]
Max. Permissible shaft loading axial	500 N [50.984 kp]

Bearings	
Bearings type	3 precision ball bearings
Nominale service life	2 x 10'8 revs. at 100 % rated shaft load 3.5 x 10'9 revs. at 40 % rated shaft load 2.5 x 10'10 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
Nominale service life (L10h)	2.5 x 10'10 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	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 %

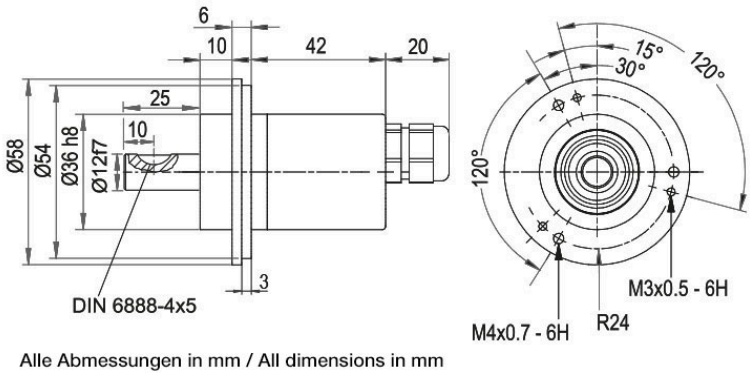
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s^2 (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s^2 (6 ms)
Electrial Safety:	according DIN VDE 0160

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: IP65
Operating temperature	-20 °C up to +80 °C [-4 °F up to +176 °F]
Storage temperature	-30 °C up to +80 °C [-22 °F up to 176 °F]

More Information
General technical data and safety instructions **http://www.wachendorff-automation.com/gtd**
Options **http://www.wachendorff-automation.com/acc**

Cable connection L2, axial, with 2 m cable

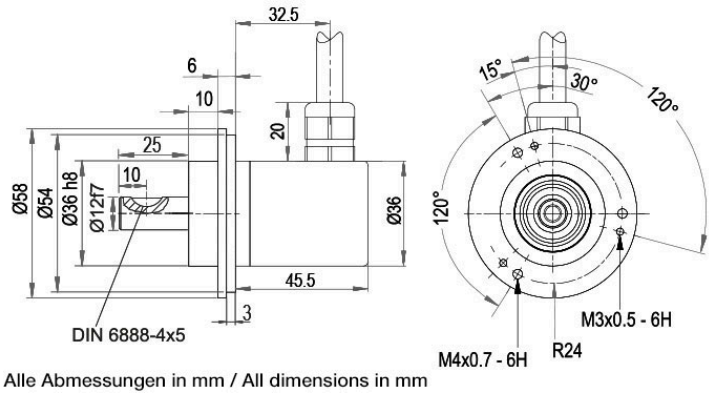


Alle Abmessungen in mm / All dimensions in mm

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

Cable connection L3, radial, with 2 m cable

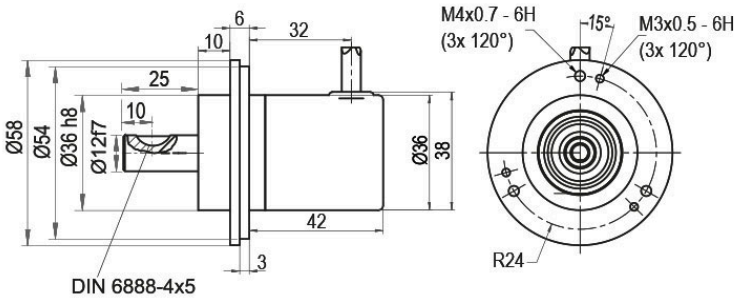


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
L3	radial, shield connected to encoder housing	•

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

Cable K1 (IP40) radial with 2 m cable

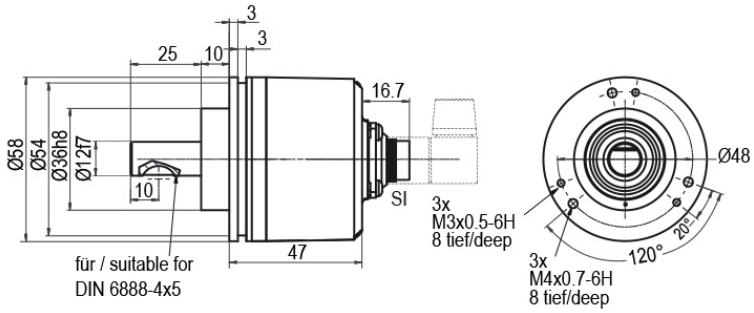


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
K1	radial, shield not connected (IP40)	•

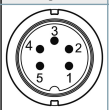
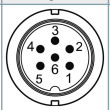
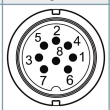
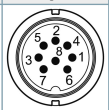
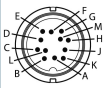
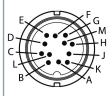
Assignments		
	K1	**K1**
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
-	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

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

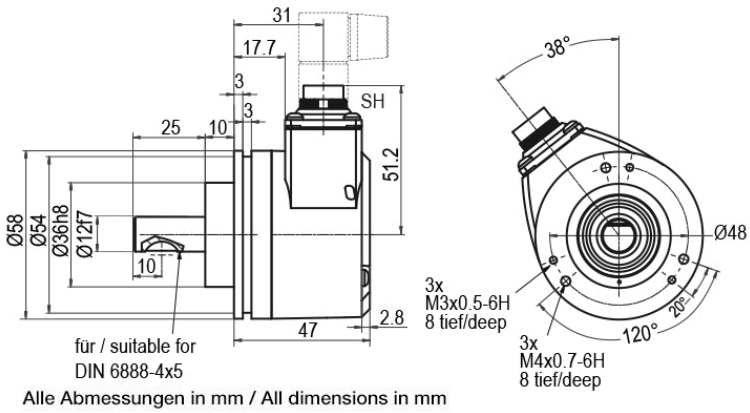


Alle Abmessungen in mm / All dimensions in mm

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	•

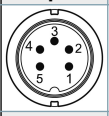
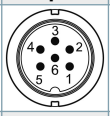
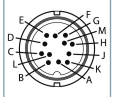
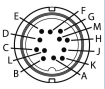
Assignments						
	SI5	**SI6**	**SI8**	**SI8**	**SI12**	**SI12**
	5-pin	**6-pin**	**8-pin**	**8-pin**	**12-pin**	**12-pin**
						
Circuit	N35	N35	N35	M35	N35	M35
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
-	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7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

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

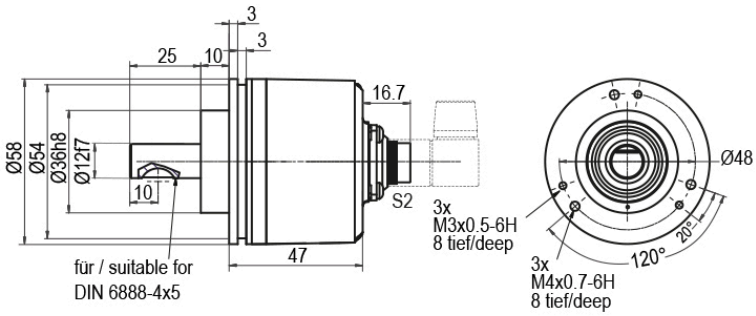


Alle Abmessungen in mm / All dimensions in mm

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	•

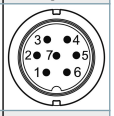
Assignments						
	SH5	**SH6**	**SH8**	**SH8**	**SH12**	**SH12**
	5-pin	**6-pin**	**8-pin**	**8-pin**	**12-pin**	**12-pin**
						
Circuit	N35	N35	N35	M35	N35	M35
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
-	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7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

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

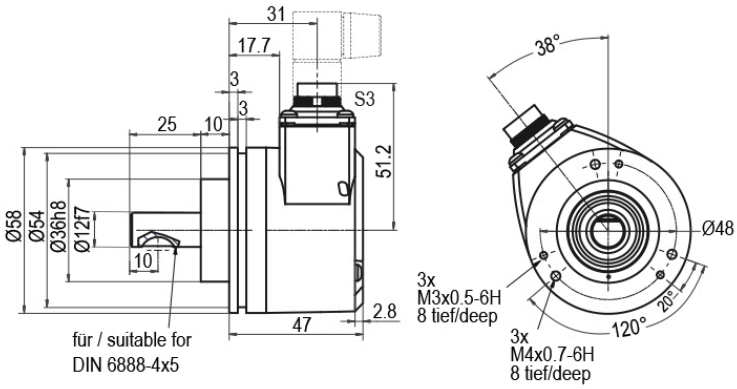


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S2	axial, 7-pin, Connector connected to encoder housing	-

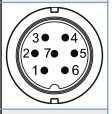
Assignments	
	S2
	7-pin
	
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
-	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

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

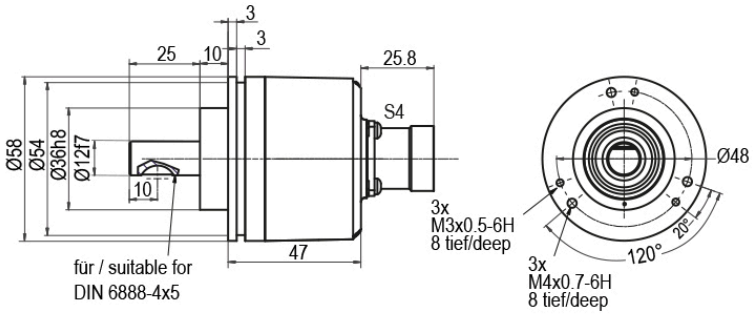


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S3	radial, 7-pin, Connector connected to encoder housing	-

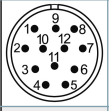
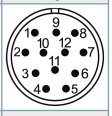
Assignments	
	S3
	7-pin
	
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
-	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

Connector (M23) S4, axial, 12-pin

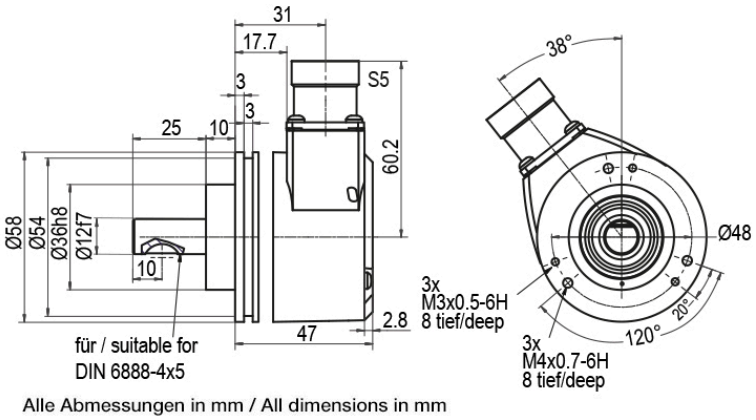


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S4	axial, 12-pin, Connector connected to encoder housing	•

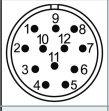
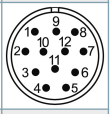
Assignments		
	S4	**S4**
	12-pin	**12-pin**
		
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

Connector (M23) S5, radial, 12-pin

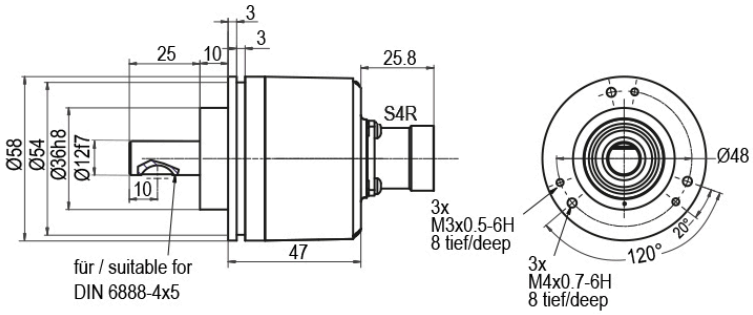


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S5	radial, 12-pin, Connector connected to encoder housing	•

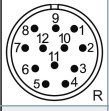
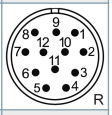
Assignments		
	S5	**S5**
	12-pin	**12-pin**
		
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

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

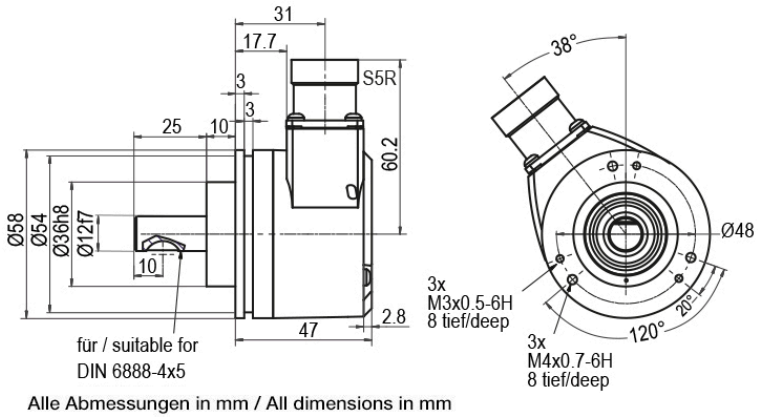


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S4R	axial, 12-pin, Connector connected to encoder housing	•

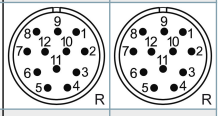
Assignments		
	S4R	**S4R**
	12-pin	**12-pin**
		
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

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

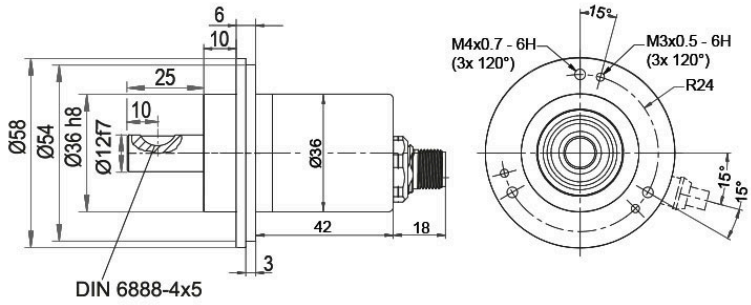


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
S5R	radial, 12-pin, Connector connected to encoder housing	•

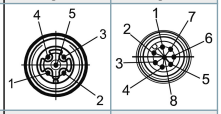
Assignments		
	S5R	**S5R**
	12-pin	**12-pin**
		
Circuit	N35	M35
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
-	-	-
A inv.	-	6
B inv.	-	1
N inv.	-	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	-	-

Sensor-connector (M12x1) SB, axial, 5-, 8-pin

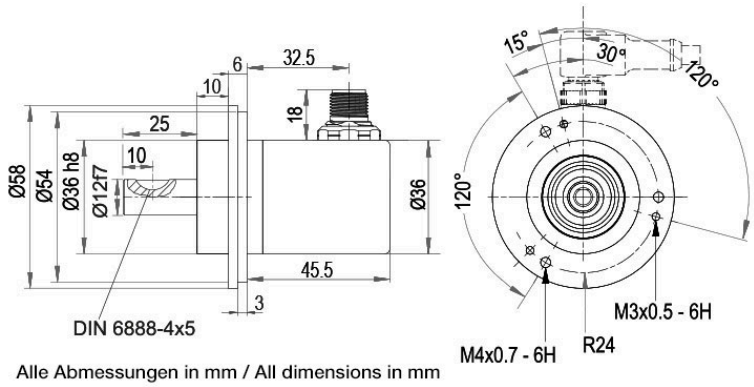


Alle Abmessungen in mm / All dimensions in mm

Description		ABN inv. poss.
SB5	axial, 5-pin, Connector connected to encoder housing	-
SB8	axial, 8-pin, Connector connected to encoder housing	•

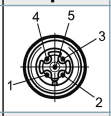
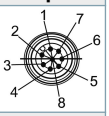
Assignments		
	SB5	**SB8**
	5-pin	**8-pin**
		
Circuit	N35	M35
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
-	-	-
A inv.	-	6
B inv.	-	7
N inv.	-	8
n. c.	-	-
Shield	-	-

Sensor-connector (M12x1) SC, radial, 5-, 8-pin



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 WDGI 58D 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**

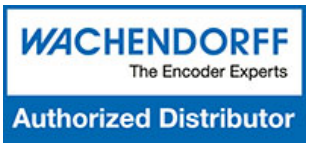
Low temperature	Order key
The encoder WDGI 58D with the output circuit types M35, N35 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange).	**ACA**

Pressure equalising membrane	Order key
The WDGI 58D 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
The encoder WDGI 58D 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 58D	WDGI 58D					WDGI 58D
	Shaft					
12	12					
	Pulses per revolution PPR:					
16384	1-16384 Other PPRs on request					
	Channels:					
ABN	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)					
	axial, shield connected to encoder housing			•	L2	
	radial, shield connected to encoder housing			•	L3	
	radial, shield not connected (IP40)			•	K1	
	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		
	Low temperature			ACA		
	Pressure equalising membrane			ACR		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No.=	WDGI 58D	12	16384	ABN	M35	L2		WDGI 58D							Your encoder



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/

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