

Online Data Sheet

Encoder WDGI 58E

www.wachendorff-automation.com/wdgi58e

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 58E



- Rugged industrial standard end hollow shaft encoder
- Housing cap die cast aluminium, with particularly eco-friendly powder coating
- Up to 25000 PPR by use of high grad electronics
- Maximum mechanical and electrical safety
- High protection accordingt IP67, shaft sealed to IP65, high noise immunity
- Hollow bore (blind)
- Full connection protection with 10 VDC up to 30 VDC
- High output frequency 600 kHz/2 MHz
- Optional: -40 °C up to +85 °C, Pressure equalising membrane

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Resolution	
Max. pulses per revolution PPR	up to 25000 PPR

Mechanical Data	
Housing	
Flange	hollow shaft (blind-bored)
Flange material	aluminium
Housing cap	die cast aluminium, powder coated
Torque supports	incl. 1 torque support WDGDS10001
- 1. Spring plate compensation	axial: ±0.8 mm, radial: ±0.2 mm
- Max. operating speed	6000 rpm up to max. protection rating +60 °C
- 2. Cylinder pin 4 mm	needs accessories WDGDS10005
- Compensation	axial: ±0.5 mm, radial: ±1.5 mm, Max. operating speed: 3000 rpm
Housing	Ø 58 mm

Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1.6 Ncm at ambient temperature
Fixing	permanently attached clamping ring

Shaft	Ø 8 mm
Shaft length	L: 35 mm
Insertion depth min.	17 mm
Insertion depth max.	39 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N

Shaft	Ø 10 mm
Shaft length	L: 35 mm
Insertion depth min.	17 mm
Insertion depth max.	39 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N

Shaft	Ø 12 mm
Shaft length	L: 35 mm
Insertion depth min.	17 mm

Insertion depth max.	39 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N
Shaft	Ø 15 mm
Shaft length	L: 35 mm
Insertion depth min.	17 mm
Insertion depth max.	39 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N

Bearings	
Bearings type	2 precision ball bearings
Nomiale 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	6000 rpm

Machinery Directive: basic data safety integrity level	
MTTF _d	200 a
Mission time (TM)	25 a
Nomiale service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 6000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: max. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: max. 100 mA
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL ≤ 5000 ppr: max. 200 kHz HTL ≤ 5000 ppr: max. 200 kHz TTL more than 1200 ppr: max. 2 MHz HTL more than 1200 ppr: max. 600 kHz 1 Vpp sin/cos: max. 100 kHz

Channels	AB ABN and inverted signals
Load	max. 40 mA / channel @ 1 Vpp sin/cos: min. 120 Ohm
Circuit protection	circuit type F24, G24, H24, I24, P24, R24 only

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % >5000 ppr: 50 % ± max. 10 %

General Data

Weight	approx. 220 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP67, shaft sealed to IP65
Operating temperature	Connector: -20 °C up to +85 °C, cable: -20 °C up to -80 °C, (Option ACA: -40 °C up to +85 °C) 1 Vpp: -10 °C up to +70 °C
Storage temperature	Connector: -30 °C up to +85 °C, cable: -20 °C up to +80 °C, option ACA: -40 °C up to +85 °C

More Information

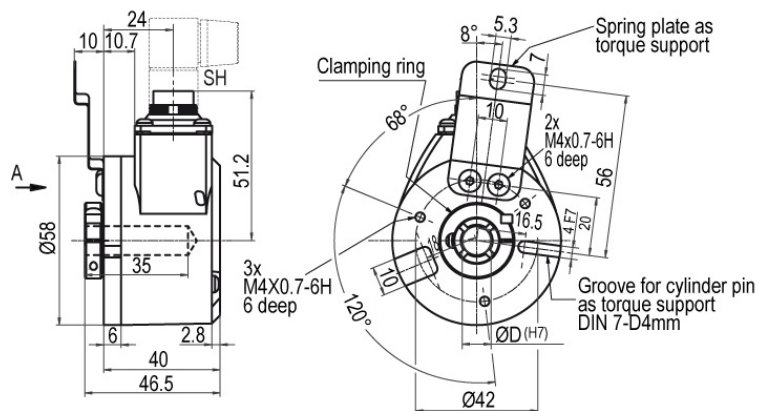
General technical data

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

Options

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

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



Description

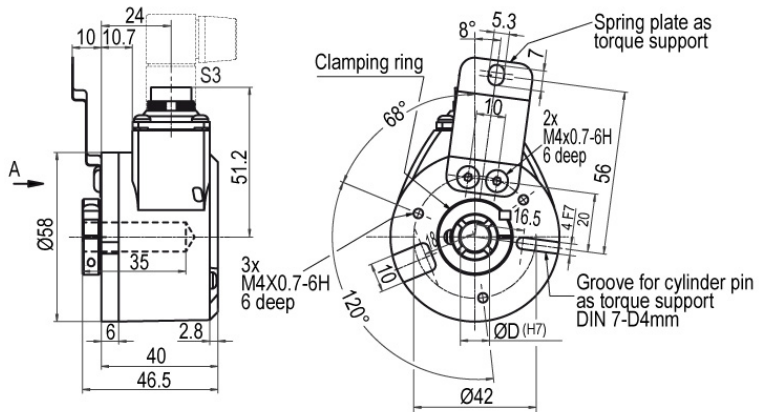
ABN inv. poss.

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	SH6	SH8	SH8	SH12	SH12	SH12	SH12	SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin	12-pin
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	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	1	6	6	1	1	K, L	K, L	K, L	K, L	K, L
(+) Vcc	2	1	1	2	2	M, B	M, B	M, B	M, B	M, B
A	3	2	2	3	3	E	E	E	E	E
B	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	-	-	F	F	F
B inv.	-	-	-	-	7	-	-	A	A	A
N inv.	-	-	-	-	8	-	-	D	D	-
n. c.	-	-	5	6, 7, 8	-	A, D, F, J	A, D, F, G, J	J	G, J	D, G, J
Shield	-	-	-	-	-	-	-	-	-	-

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

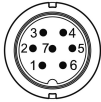


Description

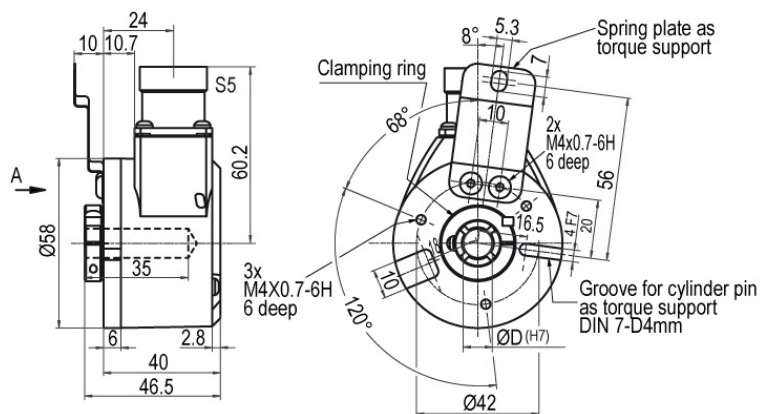
ABN inv. poss.

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

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Assignments		
	S3	S3
	7-pin	7-pin
		
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	1	1
(+) Vcc	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	-	-

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



Description

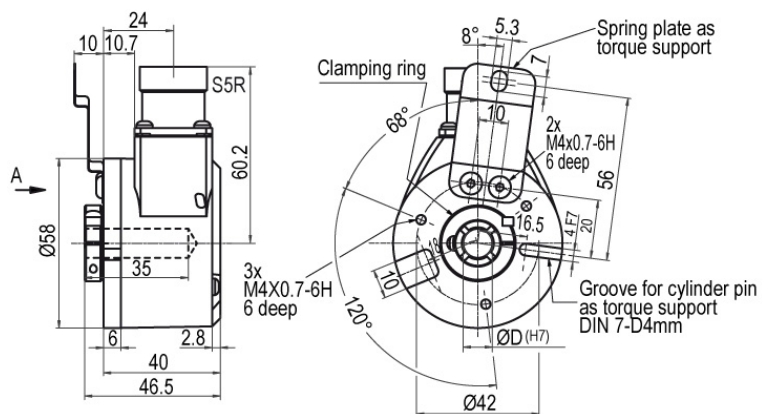
ABN inv. poss.

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

•

Assignments					
	S5	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin	12-pin
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
(+) Vcc	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	-	-	-	-	-

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

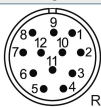
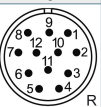
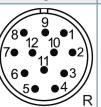
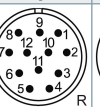
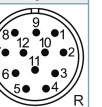


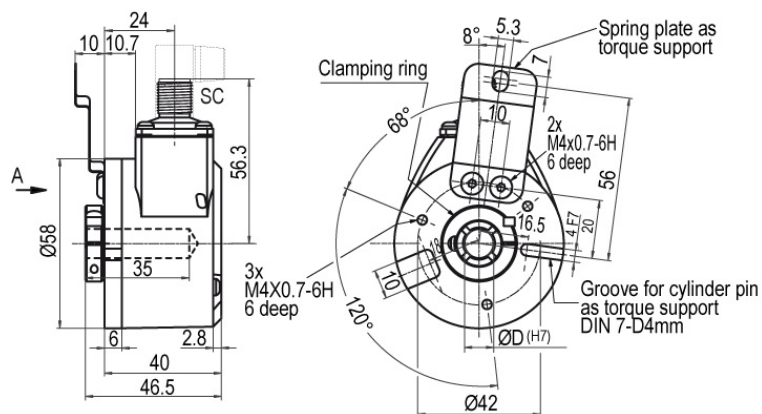
Description

ABN inv. poss.

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

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Assignments					
	S5R	S5R	S5R	S5R	S5R
	12-pin	12-pin	12-pin	12-pin	12-pin
					
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
(+) Vcc	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	-	-	-	-	-

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

Description
ABN inv. poss.
SC4 radial, 4-pin, Connector connected to encoder housing

-

SC5 radial, 5-pin, Connector connected to encoder housing

-

SC8 radial, 8-pin, Connector connected to encoder housing

•

SC12 radial, 12-pin, Connector connected to encoder housing

•

Assignments

	SC4	SC5	SC8	SC8	SC8	SC12	SC12	SC12	SC12
	4-pin	5-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin
									
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
(+) Vcc	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

Order key

The encoder WDGI 58E with the output circuit types F24, G24, H24, I24, P24, R24, F05, G05, H05, I05, P05, R05, 245, 524, 645 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

Cable length

Order key

The encoder WDGI 58E 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

XXX = Decimeter

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

Example: 5 m cable = 050

Pressure equalising membrane

Order key

The WDGI 58E 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.

ACR

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.

Example Order No.	Type				Your encoder
WDGI 58E	WDGI 58E				WDGI 58E
	Bore size				
10	08; 10; 12; 15				
	Pulses per revolution PPR:				
1024	4, 6, 10, 32, 36, 50, 60, 64, 100, 120, 125, 127, 150, 180, 200, 216, 240, 250, 254, 256, 300, 314, 360, 400, 500, 512, 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
	(higher frequency) 1200 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 Vpp sin/cos	-	SIN
	Electrical connections				
K3	Description		ABN inv. poss.	Order key	
	Cable: length (2 m standard, WDG 58T: 1 m)				
	radial, shield not connected		•	K3	
	radial, shield connected to encoder housing		•	L3	
	Connector: (shield connected to encoder housing)				
	connector, M16x0.75, 5-pin, radial		-	SH5	
	connector, M16x0.75, 6-pin, radial		-	SH6	
	connector, M16x0.75, 8-pin, radial		•	SH8	
	connector, M16x0.75, 12-pin, radial		•	SH12	
	connector, M16x0.75, 7-pin, radial		-	S3	
	connector, M23, 12-pin, radial		•	S5	
	connector, clockwise pin count, M23, 12-pin, radial		•	S5R	
	sensor-connector, M12x1, 4-pin, radial		-	SC4	
	sensor-connector, M12x1, 5-pin, radial		-	SC5	
	sensor-connector, M12x1, 8-pin, radial		•	SC8	
	sensor-connector, M12x1, 12-pin, radial		•	SC12	

	Options		
	Description	Order key	
	Without option	Empty	
	Low temperature	ACA	
	Cable length	XXX = Decimeter	
	Pressure equalising membrane	ACR	

Example Order No. =	WDGI 58E	10	1024	ABN	G24	K3		WDGI 58E								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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