



Online Data Sheet

인크리멘탈 할로우 샤프트 로터리 엔코더 - Ø40mm

WDG 40E 시리즈

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 40E

www.wachendorff-automation.com/wdg40e

IndustrieROBUST

Encoder WDG 40E



1. 중공축 (Built-in형) 증분형 소형 엔코더
2. IP67 보호 등급의 방수/방진 로터리 엔코더
- Shaft Sealing - IP65
3. 옵티컬(Optical) 방식으로 고정밀
-MAX 2500PPR
4. UL 및 CE 인증 제품

Resolution

Max. pulses per revolution up to 2500 PPR
PPR

Mechanical Data

Housing

Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing cap	aluminum, powder coated
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
- Max. operating speed	12000 rpm up to max. protection rating +60 °C
Housing	Ø 40 mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 0.2 Ncm at ambient temperature

Shaft	Ø 6 mm
Shaft length	L: 15 mm
Insertion depth min.	17 mm
Insertion depth max.	20 mm
Max. Permissible shaft loading radial	100 N
Max. Permissible shaft loading axial	50 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	1.4 x 10 ⁸ revs. at 100 % rated shaft load 2 x 10 ⁹ revs. at 40 % rated shaft load 1.7 x 10 ¹⁰ revs. at 20 % rated shaft load
Max. operating speed	12000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1.7 x 10 ¹⁰ revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA
Output circuit	TTL, RS422 compatible, inv. HTL
Pulse frequency	TTL $\leq$ 2500 ppr: max. 200 kHz HTL $\leq$ 2500 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	circuit type H24 and R24 only

Accuracy

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

General Data

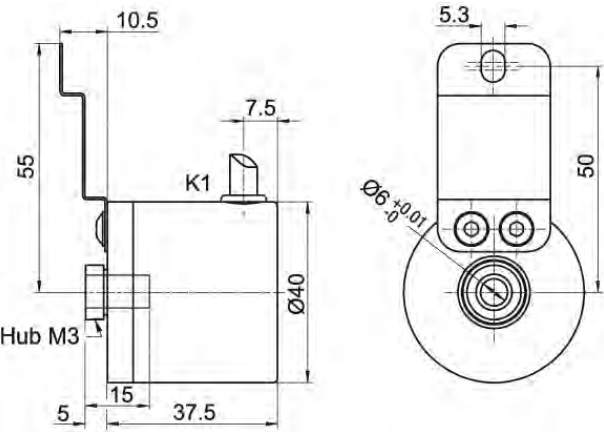
Weight	approx. 100 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP40 for K1)
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

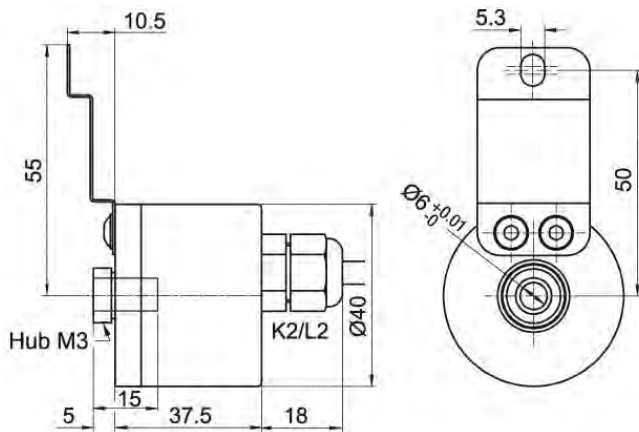
Options
<http://www.wachendorff-automation.com/acc>

Cable connection K1 (IP40) with 2 m cable



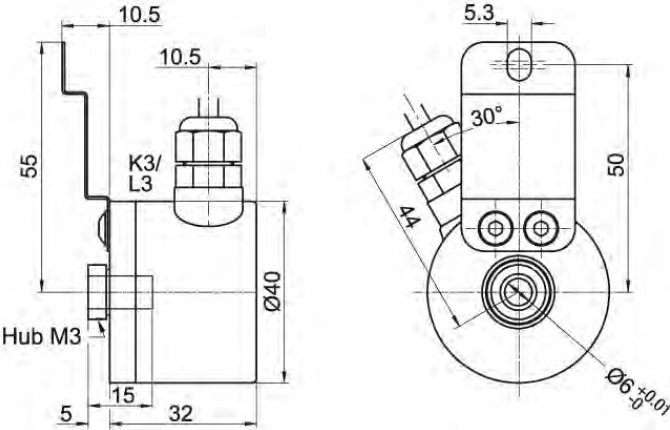
Description	ABN inv. poss.
K1 radial, shield not connected (IP40)	•

Assignments		
	K1	K1
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
N inv.	-	VT
B inv.	-	BK
Shield	flex	flex

Cable connection K2, L2 with 2 m cable


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

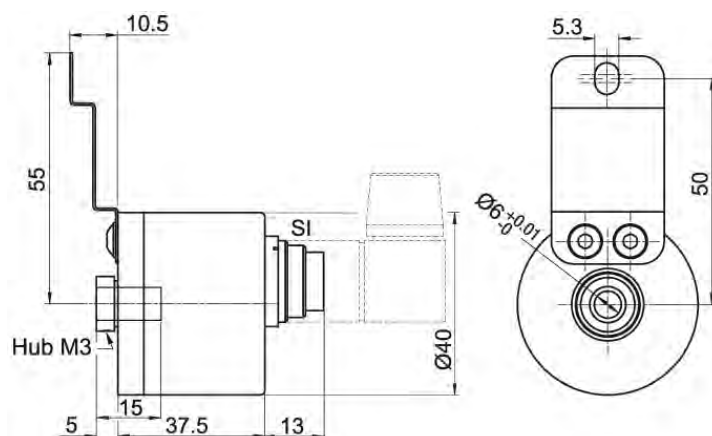
Assignments		
	K2, L2	K2, L2
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

Cable connection K3, L3 with 2 m cable

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

Assignments		
	K3, L3	K3, L3
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

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



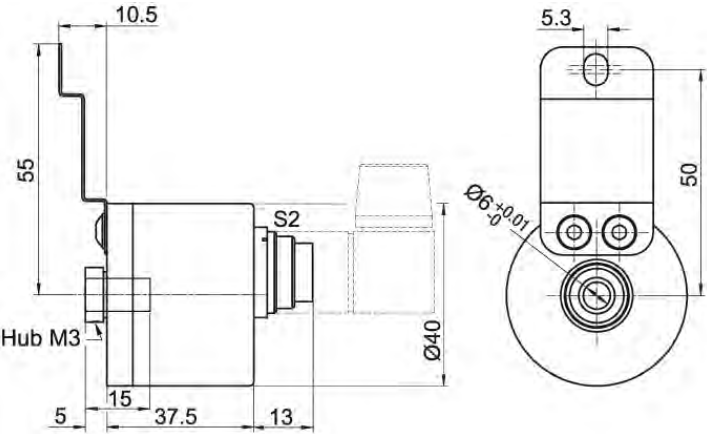
Description

		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

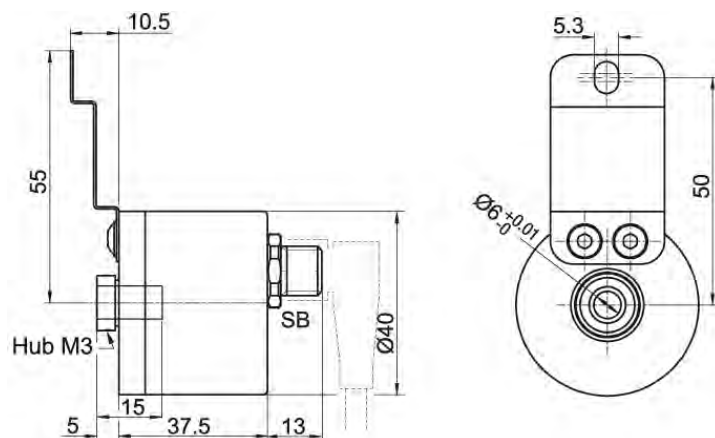
	SI5	SI6	SI8	SI8	SI12	SI12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24	H05, H24	R05, R24
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
Light reserve warning	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7	-	A
N inv.	-	-	-	8	-	D
n. c.	-	5	6, 7, 8	-	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-

Connector (M16x0.75) S2, 7-pin



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

Assignments	
	S2
	7-pin
Circuit	H05, H24
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

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

Description
ABN inv. poss.

SB4	axial, 4-pin, Connector connected to encoder housing	-
SB5	axial, 5-pin, Connector connected to encoder housing	-
SB8	axial, 8-pin, Connector connected to encoder housing	•
SB12	axial, 12-pin, Connector connected to encoder housing	•

Assignments

	SB4	SB5	SB8	SB8	SB12	SB12
	4-pin	5-pin	8-pin	8-pin	12-pin	12-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24	H05, H24	R05, R24
GND	3	3	1	1	3	3
(+) Vcc	1	1	2	2	1	1
A	2	4	3	3	4	4
B	4	2	4	4	6	6
N	-	5	5	5	8	8
Light reserve warning	-	-	-	-	-	-
A inv.	-	-	-	6	-	9
B inv.	-	-	-	7	-	7
N inv.	-	-	-	8	-	10
n. c.	-	-	6, 7, 8	-	2, 5, 7, 9, 10, 11, 12	2, 5, 11, 12
Shield	-	-	-	-	-	-

Options

Low temperature

The encoder WDG 40E with the output circuit types H24, R24 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

Order key

ACA

Cable length

The encoder WDG 40E 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: 5 m cable = 050

Order key

XXX = Decimeter

Example Order No.	Type					Your encoder
WDG 40E	WDG 40E					WDG 40E
	Bore size					
06	06					
	Pulses per revolution PPR:					
1024	4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500, 1800, 2000, 2048, 2500 Other PPRs on request					
	Channels:					
ABN	AB, ABN bis 2048 I/U					
	Output circuit					
H24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
	up to 2500	4.75 - 5.5	TTL	-	H05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05	
		10 - 30	HTL	-	H24	
		10 - 30	HTL inverted	-	R24	
	Electrical connections					
K1	Description			ABN inv. poss.	Order key	
	Cable: length (2 m standard, WDG 58T: 1 m)					
	radial, shield not connected (IP40)			•	K1	
	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, 6-pin, axial			-	SI6	
	connector, M16x0.75, 8-pin, axial			•	SI8	
	connector, M16x0.75, 12-pin, axial			•	SI12	
	connector, M16x0.75, 7-pin, axial			-	S2	
	sensor-connector, M12x1, 4-pin, axial			-	SB4	
	sensor-connector, M12x1, 5-pin, axial			-	SB5	
	sensor-connector, M12x1, 8-pin, axial			•	SB8	
	sensor-connector, M12x1, 12-pin, axial			•	SB12	
	Options					
	Description			Order key		
	Low temperature			ACA		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 40E	06	1024	ABN	H24	K1		WDG 40E							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

CREKEN

주식 회사 크레켄

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Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø58mm

WDGI 58E 시리즈

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... 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 58E

www.wachendorff-automation.com/wdgi58e

IndustrieROBUST

Encoder WDG1 58E



1. 견고한 산업 표준 중공축(Built-in) 엔코더
2. IP67 보호 등급의 방수/방진 로터리 엔코더
- Shaft Sealing - IP65
3. 고출력 주파수
- 600kHz/2MHz
4. 옵티컬(Optical) 방식으로 고정밀, 고분해능
- MAX 25000PPR
5. UL 및 CE 인증 제품

www.wachendorff-automation.com/wdgi58e

Resolution	
Max. pulses per revolution PPR	up to 25000 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing cap	die cast aluminum, 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	$\varnothing$ 58 mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1.6 Ncm at ambient temperature
Fixing	permanently attached clamping ring
Shaft	$\varnothing$ 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	$\varnothing$ 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	$\varnothing$ 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	$\varnothing$ 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
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	6000 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 6000 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 100 mA
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL $\leq$ 5000 ppr: max. 200 kHz HTL $\leq$ 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 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

General Data

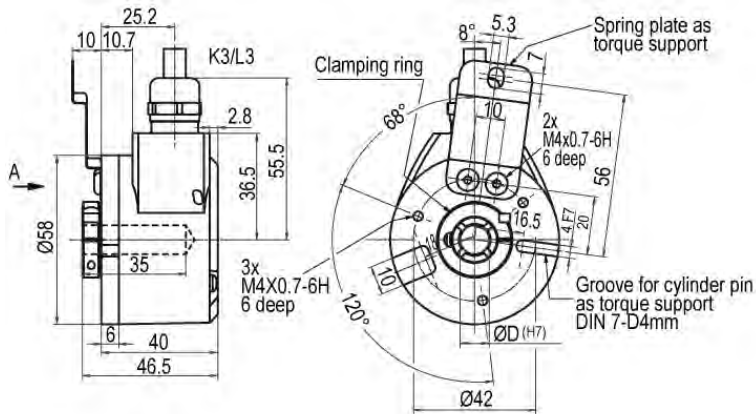
Weight	approx. 220 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP67, shaft sealed to IP65
Operating temperature	Connector: -20 °C up to +85 °C, cable: -20 °C up to +80 °C, (Option ACA: -40 °C up to +85 °C) 1 Vpp: -10 °C up to +70 °C
Storage temperature	Connector: -30 °C up to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

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

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



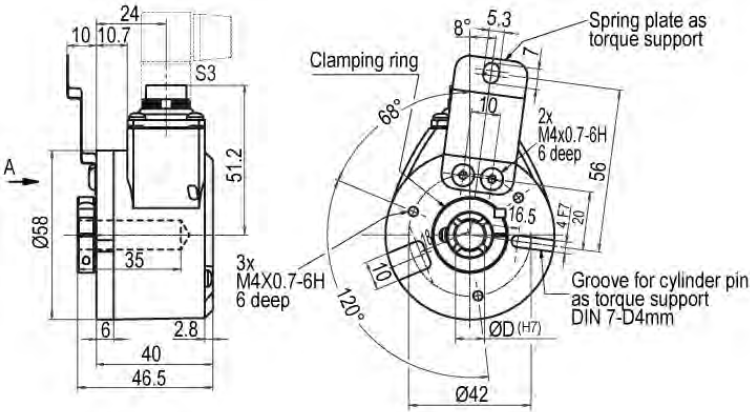
Description

ABN inv. poss.

K3	radial, shield not connected	•
L3	radial, shield connected to encoder housing	•

Assignments					
	K3, L3	K3, L3	K3, L3	K3, L3	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
(+) Vcc	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, (BU at ACA)	BK, (BU at ACA)	PK
N inv.	-	-	VT	VT	-
Shield	flex	flex	flex	flex	flex

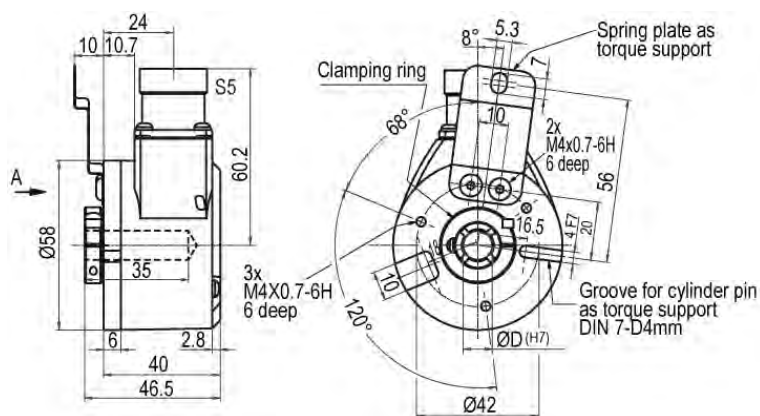
WDGI 58E: Connector (M16x0.75) S3, radial, 7-pin



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

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

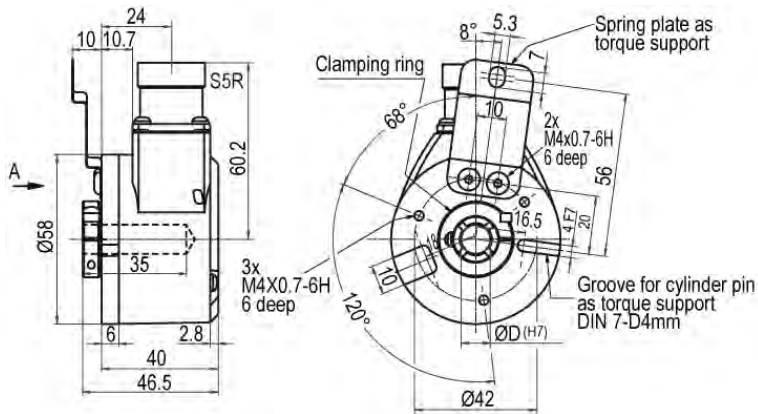
ABN inv. poss.

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)



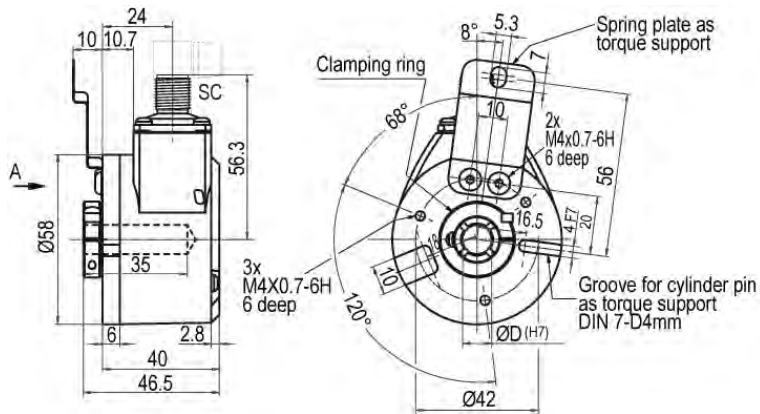
Description

ABN inv. poss.

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

•

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 4-pin	SC5 5-pin	SC8 8-pin	SC8 8-pin	SC8 8-pin	SC12 12-pin	SC12 12-pin	SC12 12-pin	SC12 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

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).

Order key

ACA

Pressure equalising membrane

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.

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 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

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 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, 70, 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 Vpp 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	
	Low temperature	ACA	
	Pressure equalising membrane	ACR	
	Without option	Empty	
	Cable length	XXX = Decimeter	

Example Order No. =	WDGI 58E	10	1024	ABN	G24	K3		WDGI 58E							Your encoder
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Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø58mm WDGI 58H 시리즈

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 58H

www.wachendorff-automation.com/wdgi58h

IndustrieROBUST

Encoder WDGI 58H



1. 견고한 산업 표준 중공축 엔코더
- 투과형(Thru-Bore) 타입으로 공간 최소화
2. IP67 보호 등급의 방수/방진 로터리 엔코더
- Shaft Sealing - IP65
3. 고출력 주파수
- 600kHz/2MHz
4. 옵티컬(Optical) 방식으로 고정밀, 고분해능
- MAX 25000PPR
5. UL 및 CE 인증 제품

Resolution	
Max. pulses per revolution PPR	up to 25000 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	die cast aluminum, 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	$\varnothing$ 58 mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 2.2 Ncm at ambient temperature
Fixing	permanently attached clamping ring
Shaft	$\varnothing$ 8 mm
Shaft length	L: 44.5 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N
Shaft	$\varnothing$ 10 mm
Shaft length	L: 44.5 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N
Shaft	$\varnothing$ 12 mm
Shaft length	L: 44.5 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 N
Shaft	$\varnothing$ 12.7 mm, $\varnothing$ 1/2"
Shaft length	L: 44.5 mm, L: 1.75 in
Max. Permissible shaft loading radial	80 N, 8.15 kp

Max. Permissible shaft loading axial	60 N, 6.12 kp
Shaft	$\varnothing$ 14 mm
Shaft length	L: 44.5 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	60 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	6000 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 6000 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 100 mA
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL $\leq$ 5000 ppr: max. 200 kHz HTL $\leq$ 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 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

General Data

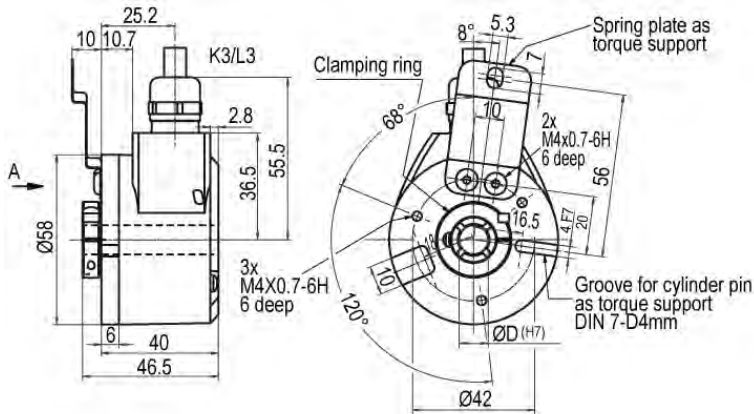
Weight	approx. 220 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP65 all around
Operating temperature	Connector: -20 °C up to +85 °C, cable: -20 °C up to +80 °C, (Option ACA: -40 °C up to +85 °C) 1 Vpp: -10 °C up to +70 °C
Storage temperature	Connector: -30 °C up to +85 °C, cable: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

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

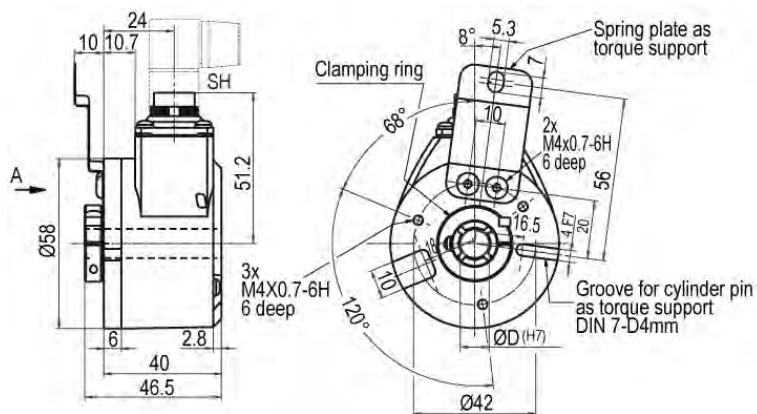
WDGI 58H: Cable connection K3, L3, radial, with 2 m cable



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

Assignments					
	K3, L3	K3, L3	K3, L3	K3, L3	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
(+) Vcc	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, (BU at ACA)	BK, (BU at ACA)	PK
N inv.	-	-	VT	VT	-
Shield	flex	flex	flex	flex	flex

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



Description

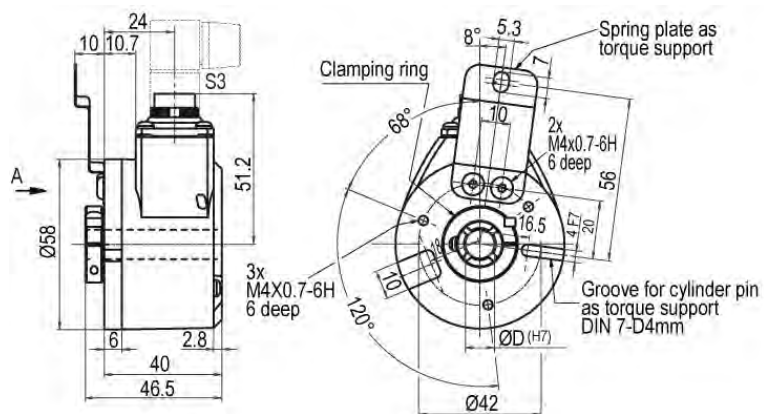
ABN inv. poss.

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 5-pin	SH6 6-pin	SH6 6-pin	SH8 8-pin	SH8 8-pin	SH12 12-pin	SH12 12-pin	SH12 12-pin	SH12 12-pin	SH12 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 58H: Connector (M16x0.75) S3, radial, 7-pin



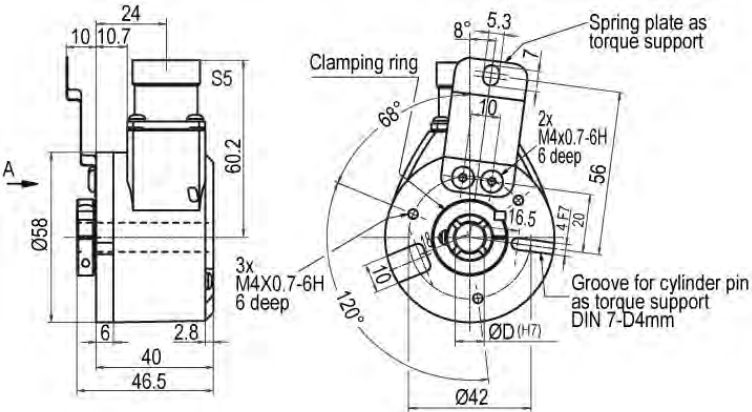
Description

ABN inv. poss.

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

-

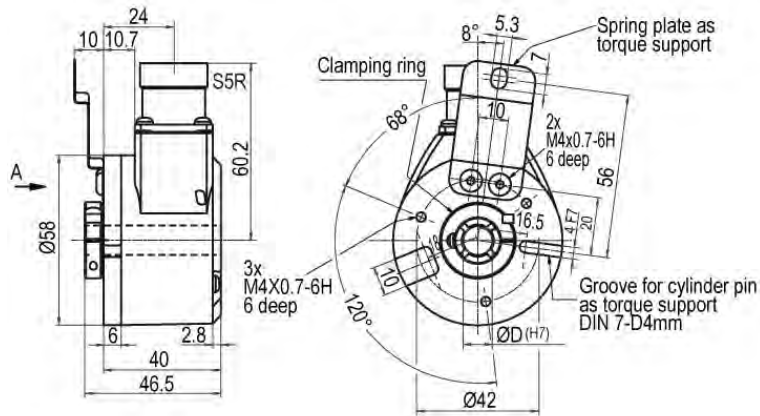
Assignments		
	S3	S3
	7-pin	7-pin
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	1	1
(+) Vcc	2	2
A	3	3
B	4	4
N	5	5
Light reserve warning	6	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	7	6, 7
Shield	-	-

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



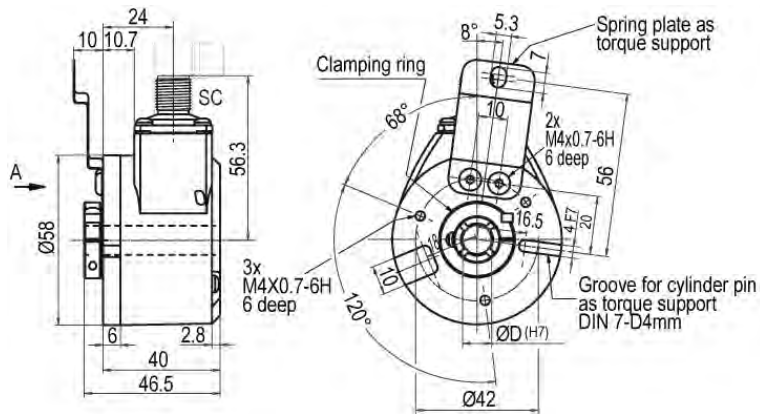
Description

ABN inv. poss.

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

•

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 58H: 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 4-pin	SC5 5-pin	SC8 8-pin	SC8 8-pin	SC8 8-pin	SC12 12-pin	SC12 12-pin	SC12 12-pin	SC12 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 WDG1 58H 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

Pressure equalising membrane

Order key

The WDG1 58H 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.

Cable length

Order key

The encoder WDG1 58H 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

Example Order No.	Type					Your encoder
WDGI 58H	WDGI 58H					WDGI 58H
	Bore size					
10	08; 10; 12; 3Z= Ø 12.7 mm,Ø 1/2"; 14					
	Pulses per revolution PPR:					
1024	4, 6, 10, 32, 36, 50, 60, 64, 70, 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 Vpp 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	
	Low temperature	ACA	
	Pressure equalising membrane	ACR	
	Without option	Empty	
	Cable length	XXX = Decimeter	

Example Order No.:	WDGI 58H	10	1024	ABN	G24	K3		WDGI 58H							Your encoder
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http://www.wachendorff-automation.com/distributors_worldwide.html

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





Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø80mm

WDG 80H 시리즈

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 80H

www.wachendorff-automation.com/wdg80h

IndustrieROBUST

Encoder WDG 80 H



1. 견고한 중공축 엔코더
- 투과형(Thru-Bore) 타입으로 공간 최소화
2. 다양한 Bore 사이즈 적용 가능
- 10, 12, 14, 15, 18, 20, 25, 27mm
3. 옵티컬(Optical) 방식으로 고정밀
- MAX 3840PPR
4. UL 및 CE 인증 제품

Resolution	
Max. pulses per revolution PPR	up to 3840 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	aluminum, powder coated
Torque supports	incl. 1 torque support WDGDS10001
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
Housing	$\varnothing 80$ mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 6 Ncm at ambient temperature
Fixing	2 x M4, DIN 913; Starting torque: 2,5 Nm
Shaft	$\varnothing 10$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 12$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 15$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 18$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N

Shaft	$\varnothing 20$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 25$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 27$ mm
Shaft length	L: 46 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Bearings	
Bearings type	2 precision ball bearings
Nomiale service life	3 x 10 ¹⁰ revs. at 100 % rated shaft load 1 x 10 ¹¹ revs. at 40 % rated shaft load 1 x 10 ¹² revs. at 20 % rated shaft load
Max. operating speed	3500 rpm
Machinery Directive: basic data safety integrity level	
MTTF _d	200 a
Mission time (TM)	25 a
Nomiale service life (L10h)	1 x 10 ¹² revs. at 20 % rated shaft load and 3500 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA

Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL ≤ 3840 ppr: max. 200 kHz HTL ≤ 3840 ppr: max. 200 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 G24, H24, I24, R24 only

Accuracy

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

General Data

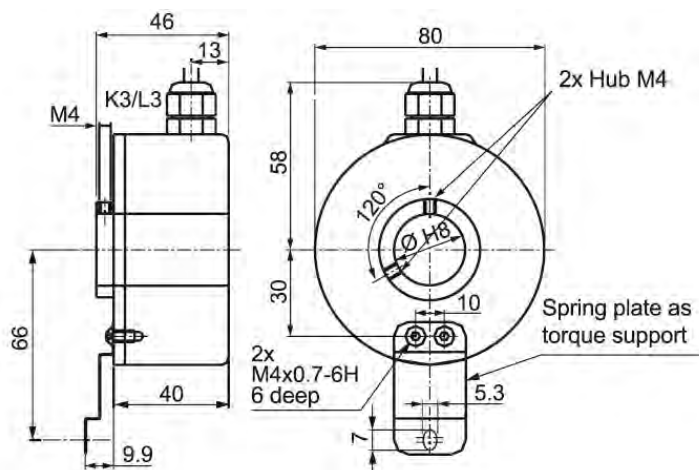
Weight	approx. 600 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP65 all around
Operating temperature	-20 °C up to +80 °C 1 Vpp: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

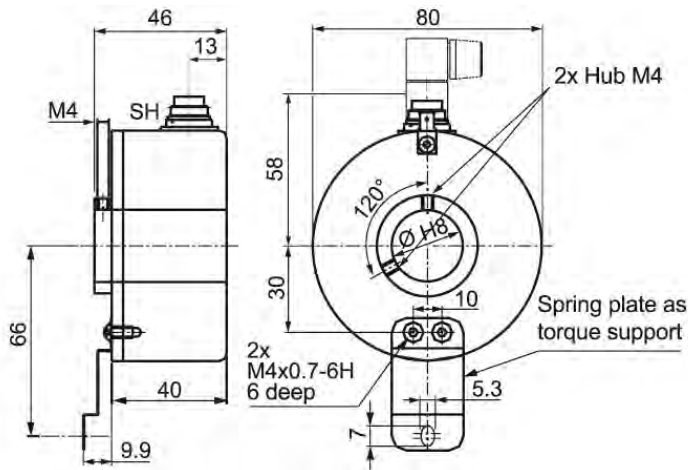
Cable connection K3, L3 with 2 m cable



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

Assignments						
	K3, L3	K3, L3	K3, L3	K3, L3	L3	L3
Circuit	G05, G24	H05, H24, H30	I05, I24, I524	R05, R24, 245, R30	SIN	SIF
GND	WH	WH	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN	BN	BN
A	GN	GN	GN	GN	GN	GN
B	YE	YE	YE	YE	GY	GY
N	GY	GY	GY	GY	BK	BK
Light reserve warning	PK	-	PK	-	-	RD
A inv.	-	-	RD	RD	YE	YE
B inv.	-	-	BK, (BU at ACA)	BK, (BU at ACA)	PK	PK
N inv.	-	-	VT	VT	VT	VT
Shield	flex	flex	flex	flex	flex	flex

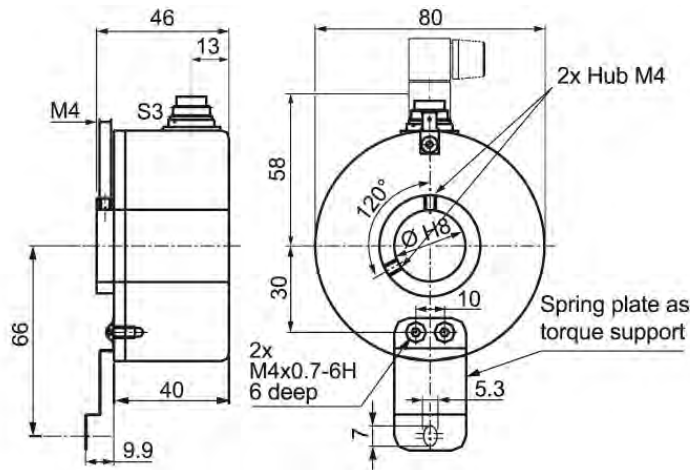
Connector (M16x0.75) SH, 5-, 6-, 8-, 12-pin



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	SH8	SH12	SH12	SH12	SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin
Circuit	H05, H24, H30	G05, G24	H05, H24, H30	H05, H24, H30	R05, R24, R30, 245	SIN	G05, G24	H05, H24, H30	R05, R24, 245, R30	SIN
GND	1	6	6	1	1	1	K, L	K, L	K, L	K, L
(+) Vcc	2	1	1	2	2	2	M, B	M, B	M, B	M, B
A	3	2	2	3	3	3	E	E	E	E
B	4	4	4	4	4	4	H	H	H	H
N	5	3	3	5	5	5	C	C	C	C
Light reserve warning	-	5	-	-	-	-	G	-	-	-
A inv.	-	-	-	-	6	6	-	-	F	F
B inv.	-	-	-	-	7	7	-	-	A	A
N inv.	-	-	-	-	8	8	-	-	D	D
n. c.	-	-	5	6, 7, 8	-	-	A, D, F, J	A, D, F, G, J	G, J	G, J
Shield	-	-	-	-	-	-	-	-	-	-

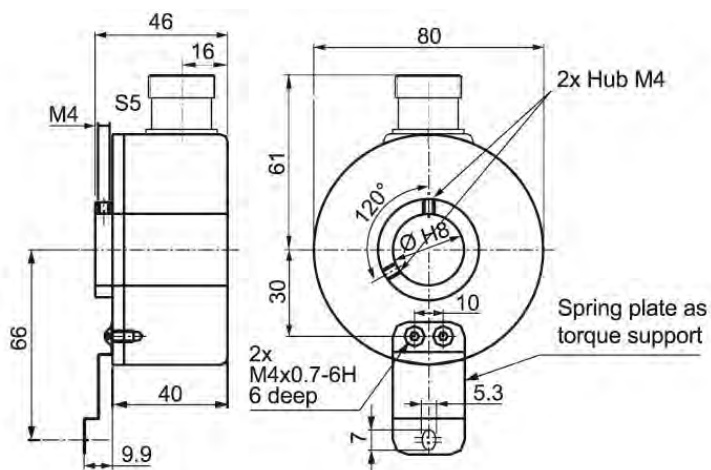
Connector (M16x0.75) S3, 7-pin



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

Assignments		
	S3 7-pin	S3 7-pin
Circuit	G05, G24	H05, 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	-	-

Connector (M23) S5, 12-pin



Description

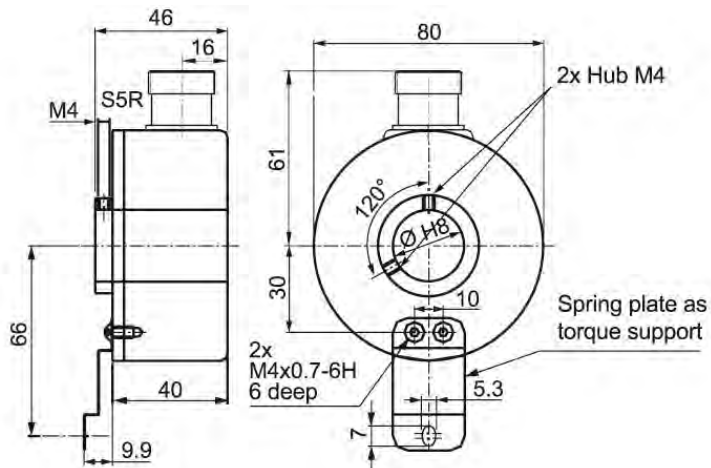
ABN inv. poss.

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

•

Assignments						
	S5	S5	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin	12-pin	12-pin
Circuit	G05, G24	H05, H24, H30	I05, I24, I524	R05, R24, 245, R30	SIN	SIF
GND	10	10	10	10	10	10
(+) Vcc	12	12	12	12	12	12
A	5	5	5	5	5	5
B	8	8	8	8	8	8
N	3	3	3	3	3	3
Light reserve warning	11	-	11	-	-	7
A inv.	-	-	6	6	6	6
B inv.	-	-	1	1	1	1
N inv.	-	-	4	4	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, 7, 9, 11	2, 9, 11
Shield	-	-	-	-	-	-

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



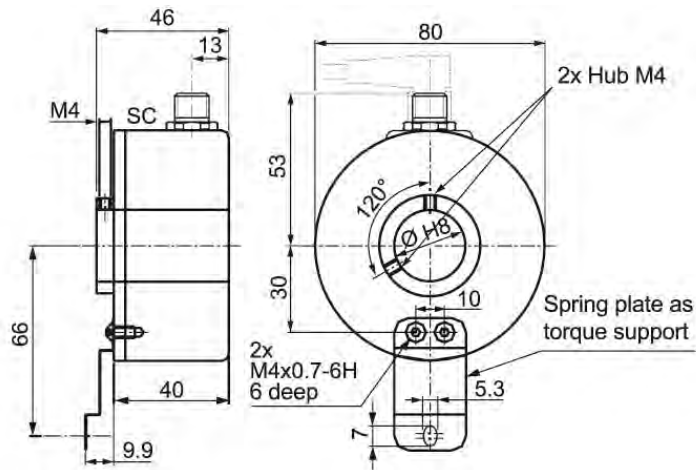
Description

ABN inv. poss.

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

•

Assignments						
	S5R	S5R	S5R	S5R	S5R	S5R
	12-pin	12-pin	12-pin	12-pin	12-pin	12-pin
Circuit	G05, G24	H05, H24, H30	I05, I24, I524	R05, R24, 245, R30	SIN	SIF
GND	10	10	10	10	10	10
(+) Vcc	12	12	12	12	12	12
A	5	5	5	5	5	5
B	8	8	8	8	8	8
N	3	3	3	3	3	3
Light reserve warning	11	-	11	-	-	7
A inv.	-	-	6	6	6	6
B inv.	-	-	1	1	1	1
N inv.	-	-	4	4	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, 7, 9, 11	2, 9, 11
Shield	-	-	-	-	-	-

Sensor-connector (M12x1) SC, 4-, 5-, 8-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	•

Assignments

	SC4	SC5	SC8	SC8	SC8
	4-pin	5-pin	8-pin	8-pin	8-pin
Circuit	H05, H24, H30	H05, H24, H30	H05, H24, H30	R05, R24, R30, 245	SIN
GND	3	3	1	1	1
(+) Vcc	1	1	2	2	2
A	2	4	3	3	3
B	4	2	4	4	5
N	-	5	5	5	7
Light reserve warning	-	-	-	-	-
A inv.	-	-	-	6	4
B inv.	-	-	-	7	6
N inv.	-	-	-	8	8
n. c.	-	-	6, 7, 8	-	-
Shield	-	-	-	-	-

Options

Low temperature

The encoder WDG 80H with the output circuit types G24, I24, G05, I05 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

Order key

ACA

Cable length

The encoder WDG 80H 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: 5 m cable = 050

Order key

XXX = Decimeter

Example Order No.	Type					Your encoder
WDG 80H	WDG 80H					WDG 80H
	Bore size					
25	10; 12; 15; 18; 20; 25; 27					
	Pulses per revolution PPR:					
1024	50, 100, 250, 500, 720, 1000, 1024, 1920, 2048, 2500, 3840 1 Vpp Sin/Cos only 1024 Other PPRs on request					
	Channels:					
ABN	AB, ABN					
	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 3840	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	
	1024	4.75 - 5.5	1 Vpp sin/cos	•	SIF	
		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	
	Options					
	Description			Order key		
	Low temperature			ACA		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 80H	25	1024	ABN	G24	K3		WDG 80H							Your encoder
----------------------------	---------	----	------	-----	-----	----	--	---------	--	--	--	--	--	--	---------------------



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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E-Mail: sales@creken.co.kr
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www.wachendorff-automation.de





Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø 100mm WDG 100H 시리즈

Wachendorff Automation ... systems and encoders

- Complete systems
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- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
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- Worldwide distributor network

Encoder WDG 100H
www.wachendorff-automation.com/wdg100h

Industrie ROBUST

Encoder WDG 100H



1. 견고한 투과형(Thru-Bore) 중공축 로터리 엔코더
- 파워 모터용, 공간 최적화(extremely thin)
2. 다양한 Bore 사이즈 적용 가능
- 25, 25.4(1inch), 28, 30, 32, 35, 36, 38, 40, 42, 45mm
3. 옵티컬(Optical) 방식으로 고정밀, 고분해능
- MAX 20480PPR
4. IP54의 보호등급
5. UL 및 CE 인증 제품

Resolution	
Max. pulses per revolution PPR	up to 20480 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	aluminum, powder coated
Torque supports	incl. 1 torque support WDGDS10001
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
Housing	$\varnothing 100$ mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1.5 Ncm at ambient temperature
Fixing	2 x M4, DIN 913; Starting torque: 2,5 Nm
Shaft	$\varnothing 25$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 25.4$ mm, $\varnothing 1"$
Shaft length	L: 42 mm, L: 1.65 in
Max. Permissible shaft loading radial	200 N, 20.39 kp
Max. Permissible shaft loading axial	100 N, 10.197 kp
Shaft	$\varnothing 28$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 30$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N

Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 32$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 35$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 36$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 38$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 40$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 42$ mm
Shaft length	L: 42 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 45$ mm
Shaft length	L: 42 mm

Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	3 x 10 ¹⁰ revs. at 100 % rated shaft load 1 x 10 ¹¹ revs. at 40 % rated shaft load 1 x 10 ¹² revs. at 20 % rated shaft load
Max. operating speed	3500 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹² revs. at 20 % rated shaft load and 3500 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 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 H24 and R24 only

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

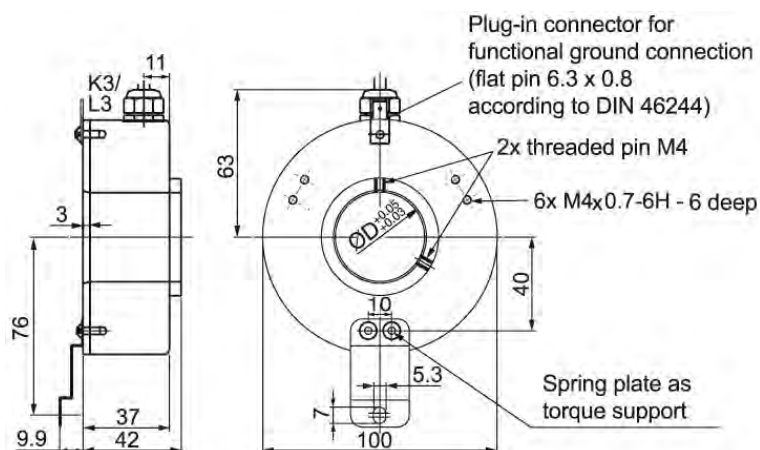
General Data

Weight	approx. 720 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP54
Operating temperature	-20 °C up to +80 °C 1 Vpp: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

Cable connection K3, L3 with 2 m cable

Description
ABN inv. poss.
K3 radial, shield not connected

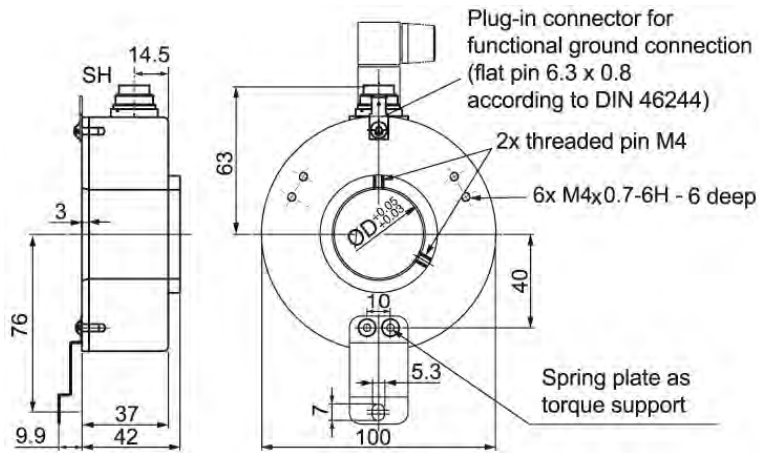
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L3 radial, shield connected to encoder housing

•

Assignments				
	K3, L3	K3, L3	L3	L3
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN
A	GN	GN	GN	GN
B	YE	YE	GY	GY
N	GY	GY	BK	BK
Light reserve warning	-	-	-	RD
A inv.	-	RD	YE	YE
B inv.	-	BK, (BU at ACA)	PK	PK
N inv.	-	VT	VT	VT
Shield	flex	flex	flex	flex

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



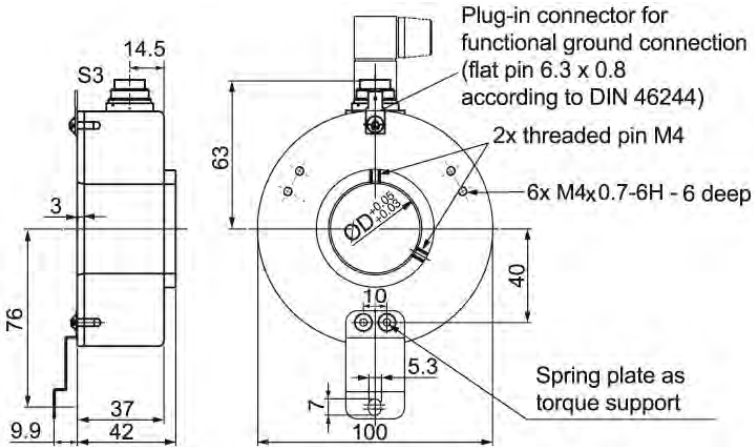
Description

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	•

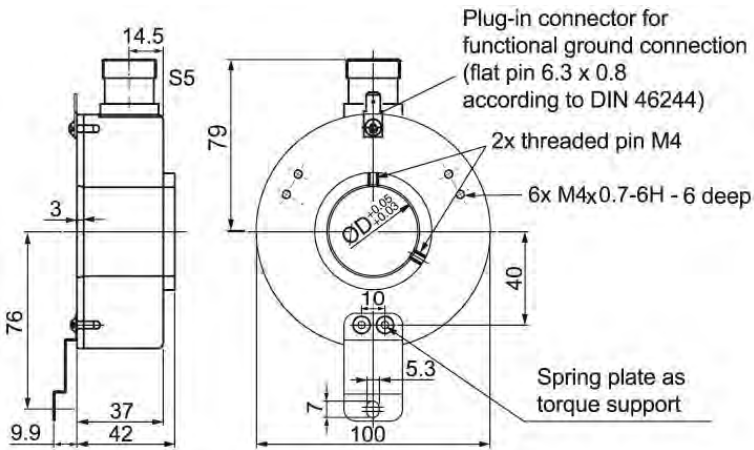
Assignments

	SH5	SH6	SH8	SH8	SH8	SH12	SH12	SH12
	5-pin	6-pin	8-pin	8-pin	8-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	P05, R05, P24, R24, 245, 645, R30	F05, H05, F24, H24, H30	SIN
GND	1	6	1	1	1	K, L	K, L	K, L
(+) Vcc	2	1	2	2	2	M, B	M, B	M, B
A	3	2	3	3	3	E	E	E
B	4	4	4	4	4	H	H	H
N	5	3	5	5	5	C	C	C
Light reserve warning	-	-	-	-	-	-	-	-
A inv.	-	-	-	6	6	F	-	F
B inv.	-	-	-	7	7	A	-	A
N inv.	-	-	-	8	8	D	-	D
n. c.	-	5	6, 7, 8	-	-	G, J	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-	-	-

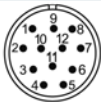
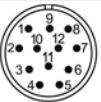
Connector (M16x0.75) S3, 7-pin**Description****ABN inv. poss.****S3** radial, 7-pin, Connector connected to encoder housing

-

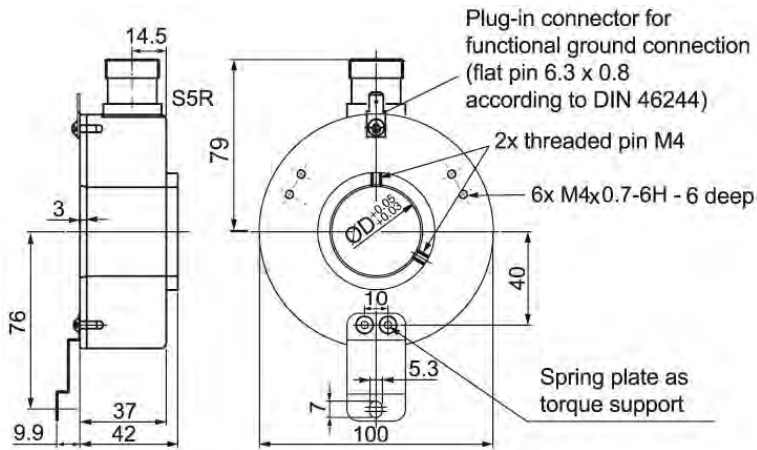
Assignments	
	S3
	7-pin
	
Circuit	F05, H05, F24, H24, H30
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

Connector (M23) S5, 12-pin**Description****ABN inv. poss.****S5** radial, 12-pin, Connector connected to encoder housing

•

Assignments				
	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin
				
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

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



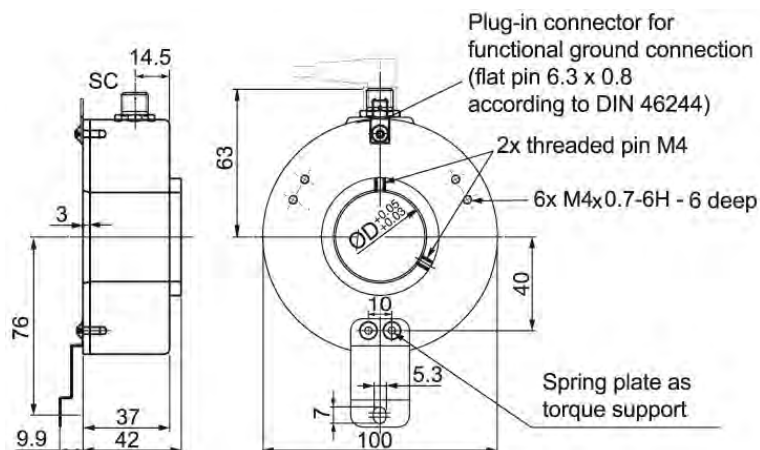
Description

ABN inv. poss.

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

•

Assignments				
	S5R 12-pin	S5R 12-pin	S5R 12-pin	S5R 12-pin
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

Sensor-connector (M12x1) SC, 4-, 5-, 8-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	•

Assignments

	SC4	SC5	SC8	SC8	SC8
	4-pin	5-pin	8-pin	8-pin	8-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
GND	3	3	1	1	1
(+) Vcc	1	1	2	2	2
A	2	4	3	3	3
B	4	2	4	4	5
N	-	5	5	5	7
Light reserve warning	-	-	-	-	-
A inv.	-	-	-	6	4
B inv.	-	-	-	7	6
N inv.	-	-	-	8	8
n. c.	-	-	6, 7, 8	-	-
Shield	-	-	-	-	-

Options

Low temperature

The encoder WDG 100H with the output circuit types F24, H24, P24, R24, F05, H05, P05, R05, 245, 645 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

Order key

ACA

IP55 all around (not 1 Vpp Sin/Cos)

The encoder WDG 100H can be supplied in a full IP55 version.

Order key

ACP

Max. RPM: 1500 rpm

Permitted Shaft-Loading, axial: 100 N, 12.237 kp

Permitted Shaft-Loading, radial: 120 N, 22.434 kp

Max. PPR: 5000 ppr

Starting-torque: approx. 5 Ncm at ambient temperature, approx. 1.416 in-ozf at ambient temperature

Cable length

The encoder WDG 100H 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: 5 m cable = 050

Order key

XXX = Decimeter

Example Order No.	Type						Your encoder
WDG 100H	WDG 100H						WDG 100H
		Bore size					
25	25; 1Z= Ø 25.4 mm, Ø 1"; 28; 30; 32; 35; 36; 38; 40; 42; 45						
		Pulses per revolution PPR:					
1024	512, 1000, 1024, 2048, 2500, 3600, 4096, 4500, 5000, 8192, 10240, 16384, 20480 1 Vpp Sin/Cos only 1024, 2048 Other PPRs on request						
		Channels:					
ABN	AB, ABN						
		Output circuit					
H24	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	-	H05		
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05		
		10 - 30	HTL	-	H24		
		10 - 30	HTL inverted	-	R24		
		10 - 30	TTL, RS422 comp., inverted	-	245		
		8192 up to 20480	4.75 - 5.5	TTL	-	F05	
	1024, 2048	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		
		4.75 - 5.5	1 Vpp sin/cos	•	SIF		
		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		
		Options					
	Description	Order key					
	Low temperature	ACA					
	IP55	ACP					
	Without option	Empty					
	Cable length	XXX = Decimeter					

Example Order No. =	WDG 100H	25	1024	ABN	H24	K3		WDG 100H							Your encoder
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Here you find a list of our distributors worldwide.
http://www.wachendorff-automation.com/distributors_worldwide.html

CREKEN

주식회사 크레켄

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Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø100mm WDG 100I 시리즈

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- Worldwide distributor network

Encoder WDG 100I
www.wachendorff-automation.com/wdg100i

Industrie ROBUST

Encoder WDG 100I



1. 견고한 통과형(Thru-Bore) 중공축 로터리 엔코더
- 파워 모터용, 공간 최적화(extremely thin)
- 모터와의 절연을 위한 슬리브(Sleeve) 적용
2. 다양한 Bore 사이즈 적용 가능
- 25, 30, 32, 38, 40, 42, 45mm
3. 옵티컬(Optical) 방식으로 고정밀, 고분해능
- MAX 20480PPR
4. IP54의 보호등급
5. UL 및 CE 인증 제품

Resolution	
Max. pulses per revolution PPR	up to 20480 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	aluminum, powder coated
Torque supports	incl. 1 torque support WDGDS10012
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
Housing	$\varnothing 100$ mm
Shaft(s)	
Shaft material	stainless steel, (insulation sleeve: POM-C)
Starting torque	approx. 1.5 Ncm at ambient temperature
Fixing	clamping screw M4 with hexagon socket
Shaft	$\varnothing 25$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 30$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 32$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N

Shaft	$\varnothing 38$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 40$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	$\varnothing 42$ mm
Advice	with insulating sleeve
Shaft length	L: 48.8 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Bearings	
Bearings type	2 precision ball bearings
Nomiale service life	3 x 10 ¹⁰ revs. at 100 % rated shaft load 1 x 10 ¹¹ revs. at 40 % rated shaft load 1 x 10 ¹² revs. at 20 % rated shaft load
Max. operating speed	3500 rpm
Machinery Directive: basic data safety integrity level	
MTTF _d	200 a
Mission time (TM)	25 a
Nomiale service life (L10h)	1 x 10 ¹² revs. at 20 % rated shaft load and 3500 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 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 H24 and R24 only
Electric strength (DIN EN 60243-2)	Insulating sleeve: 500 V

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

General Data

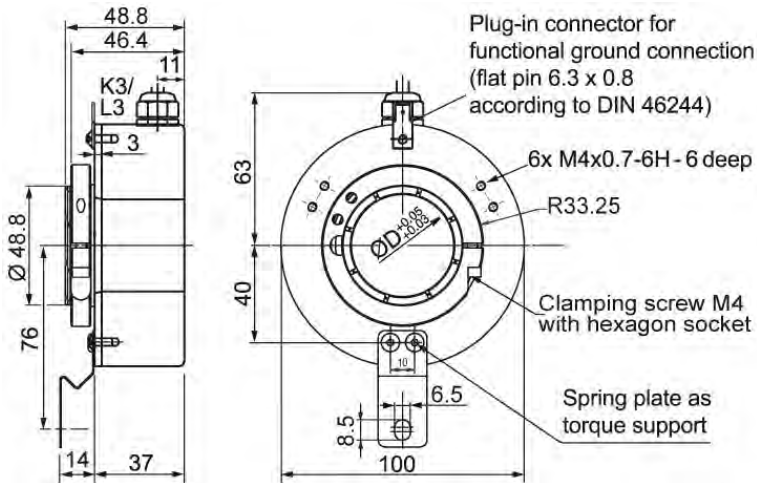
Weight	approx. 900 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP54
Operating temperature	-20 °C up to +80 °C 1 Vpp: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

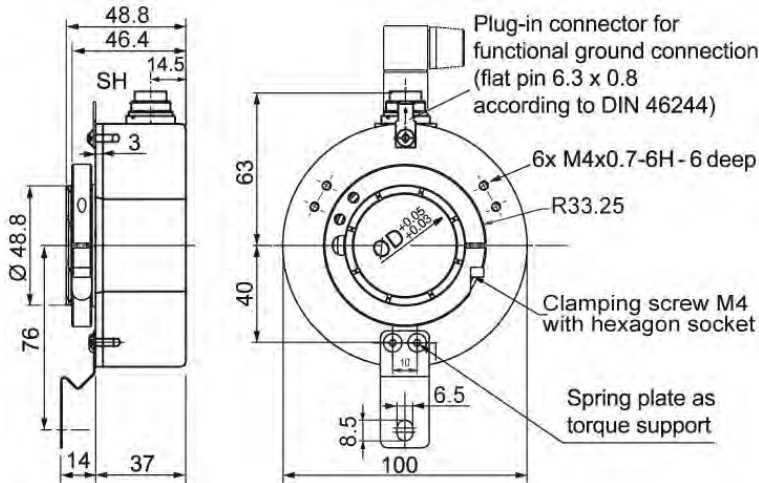
Cable connection K3, L3 with 2 m cable



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

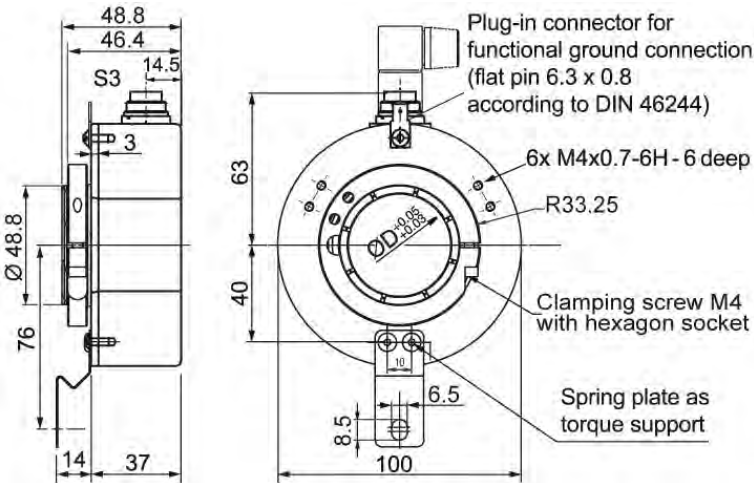
Assignments				
	K3, L3	K3, L3	L3	L3
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN
A	GN	GN	GN	GN
B	YE	YE	GY	GY
N	GY	GY	BK	BK
Light reserve warning	-	-	-	RD
A inv.	-	RD	YE	YE
B inv.	-	BK, (BU at ACA)	PK	PK
N inv.	-	VT	VT	VT
Shield	flex	flex	flex	flex

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



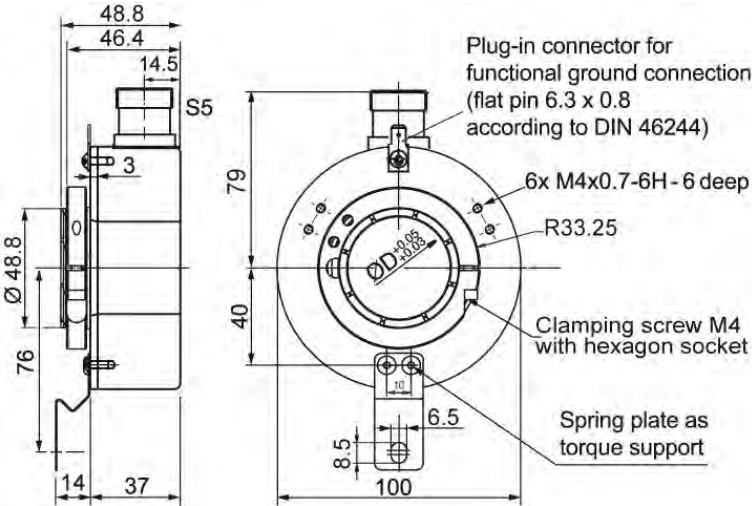
Description	ABN inv. poss.
SH5 radial, 5-pin, Connector connected to encoder housing	-
SH6 radial, 6-pin, Connector connected to encoder housing	-
SH8 radial, 8-pin, Connector connected to encoder housing	•
SH12 radial, 12-pin, Connector connected to encoder housing	•

Assignments								
	SH5 5-pin	SH6 6-pin	SH8 8-pin	SH8 8-pin	SH8 8-pin	SH12 12-pin	SH12 12-pin	SH12 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	P05, R05, P24, R24, 245, 645, R30	F05, H05, F24, H24, H30	SIN
GND	1	6	1	1	1	K, L	K, L	K, L
(+) Vcc	2	1	2	2	2	M, B	M, B	M, B
A	3	2	3	3	3	E	E	E
B	4	4	4	4	4	H	H	H
N	5	3	5	5	5	C	C	C
Light reserve warning	-	-	-	-	-	-	-	-
A inv.	-	-	-	6	6	F	-	F
B inv.	-	-	-	7	7	A	-	A
N inv.	-	-	-	8	8	D	-	D
n. c.	-	5	6, 7, 8	-	-	G, J	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-	-	-

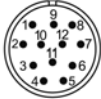
Connector (M16x0.75) S3, 7-pin**Description****ABN inv. poss.****S3** radial, 7-pin, Connector connected to encoder housing

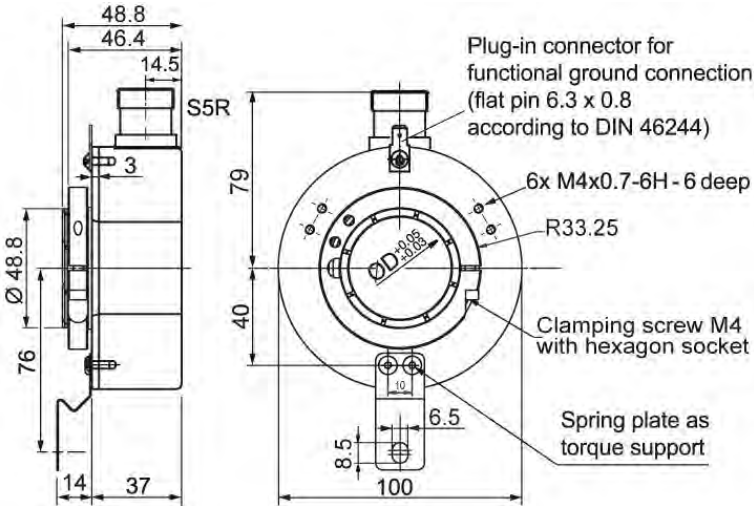
-

Assignments	
	S3
	7-pin
	
Circuit	F05, H05, F24, H24, H30
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

Connector (M23) S5, 12-pin**Description****ABN inv. poss.****S5** radial, 12-pin, Connector connected to encoder housing

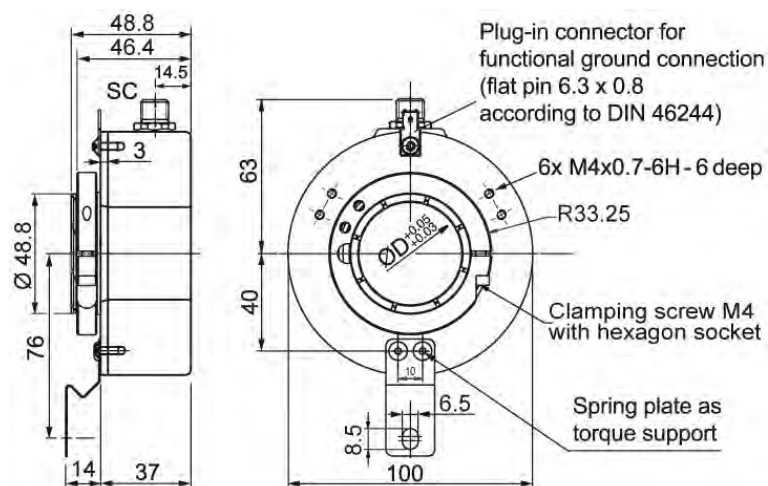
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Assignments				
	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin
				
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

Connector (M23) S5R, 12-pin (clockwise)**Description****ABN inv. poss.****S5R** radial, 12-pin, Connector connected to encoder housing

•

Assignments				
	S5R	S5R	S5R	S5R
	12-pin	12-pin	12-pin	12-pin
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

Sensor-connector (M12x1) SC, 4-, 5-, 8-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	•

Assignments

	SC4	SC5	SC8	SC8	SC8
	4-pin	5-pin	8-pin	8-pin	8-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
GND	3	3	1	1	1
(+) Vcc	1	1	2	2	2
A	2	4	3	3	3
B	4	2	4	4	5
N	-	5	5	5	7
Light reserve warning	-	-	-	-	-
A inv.	-	-	-	6	4
B inv.	-	-	-	7	6
N inv.	-	-	-	8	8
n. c.	-	-	6, 7, 8	-	-
Shield	-	-	-	-	-

Options

Low temperature

Order key

The encoder WDG 100I with the output circuit types F24, H24, P24, R24, F05, H05, P05, R05, 245, 645 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

ACA

IP55 all around (not 1 Vpp Sin/Cos)

Order key

The encoder WDG 100I can be supplied in a full IP55 version.

ACP

Max. RPM: 1500 rpm

Permitted Shaft-Loading, axial: 100 N, 12.237 kp

Permitted Shaft-Loading, radial: 120 N, 22.434 kp

Max. PPR: 5000 ppr

Starting-torque: approx. 5 Ncm at ambient temperature, approx. 1.416 in-ozf at ambient temperature

Cable length

Order key

The encoder WDG 100I 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

Example Order No.	Type					Your encoder
WDG 100I	WDG 100I					WDG 100I
	Bore size					
38	25; 30; 32; 38; 40; 42					
	Pulses per revolution PPR:					
1024	512, 1000, 1024, 2048, 2500, 3600, 4096, 4500, 5000, 8192, 10240, 16384, 20480 1 Vpp Sin/Cos only 1024, 2048 Other PPRs on request					
	Channels:					
ABN	AB, ABN					
	Output circuit					
H24	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	-	H05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05	
		10 - 30	HTL	-	H24	
		10 - 30	HTL inverted	-	R24	
		10 - 30	TTL, RS422 comp., inverted	-	245	
		4.75 - 5.5	TTL	-	F05	
	8192 up to 20480	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	•	SIF
		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	
	Options					
	Description			Order key		
	Low temperature			ACA		
	IP55			ACP		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 100I	38	1024	ABN	H24	K3		WDG 100I							Your encoder
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Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø100mm WDG 100G 시리즈

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Industrie ROBUST

Encoder WDG 100G



1. 견고한 통과형(Thru-Bore) 중공축 로터리 엔코더
- 파워 모터용, 공간 최적화(extremely thin)
2. 다양한 Bore 사이즈 적용 가능
- 25, 25.4(1inch), 28, 30, 32, 35, 36, 38, 40, 42, 45mm
3. 옵티컬(Optical) 방식으로 고정밀, 고분해능
- MAX 20480PPR
4. UL 및 CE 인증 제품

Resolution

Max. pulses per revolution up to 20480 PPR
PPR

Mechanical Data

Housing

Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	aluminum
Torque supports	incl. 1 torque support WDGDS10020
- 1. Spring plate compensation	axial: ±1 mm, radial: ±0.5 mm
Housing	Ø 100 mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 1.5 Ncm at ambient temperature
Fixing	2 x M4, DIN 913; Starting torque: 2,5 Nm

Shaft Ø 25 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 25.4 mm, Ø 1"

Shaft length L: 42 mm, L: 1.65 in

Max. Permissible shaft loading radial 200 N, 20.39 kp

Max. Permissible shaft loading axial 100 N, 10.197 kp

Shaft Ø 28 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 30 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 32 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 35 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 36 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 38 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 40 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 42 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft Ø 45 mm

Shaft length L: 42 mm

Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	3 x 10 ¹⁰ revs. at 100 % rated shaft load 1 x 10 ¹¹ revs. at 40 % rated shaft load 1 x 10 ¹² revs. at 20 % rated shaft load
Max. operating speed	1500 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹² revs. at 20 % rated shaft load and 1500 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 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 H24 and R24 only

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

General Data

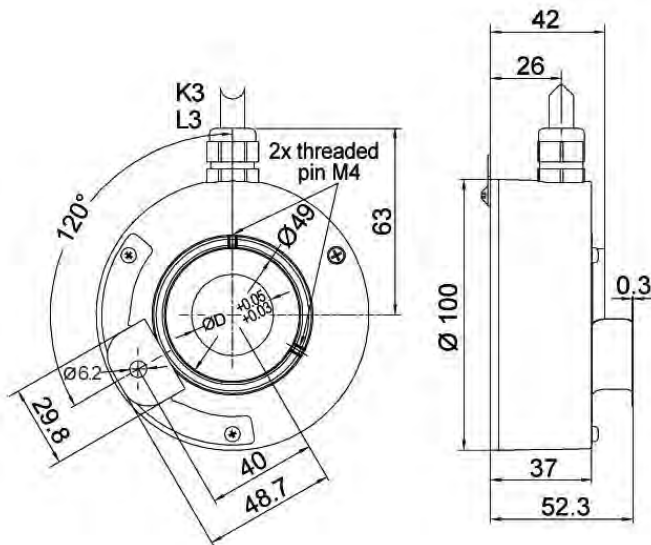
Weight	approx. 720 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP50
Operating temperature	-20 °C up to +80 °C 1 Vpp: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

Cable connection K3, L3 with 2 m cable



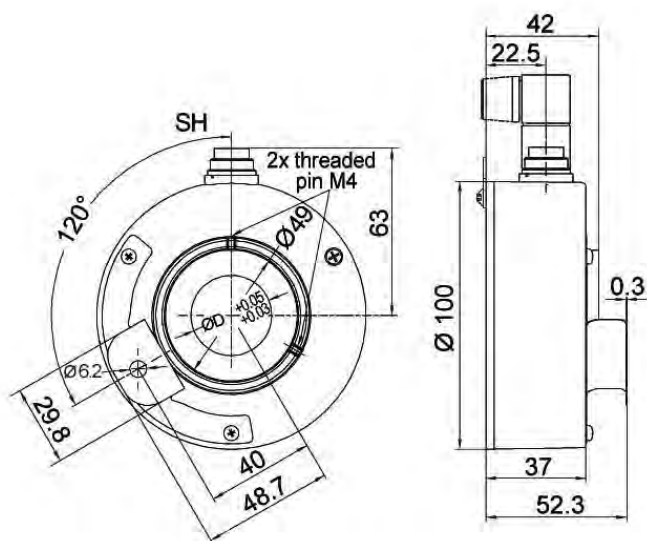
Description

ABN inv. poss.

K3	radial, shield not connected	•
L3	radial, shield connected to encoder housing	•

Assignments				
	K3, L3	K3, L3	L3	L3
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN
A	GN	GN	GN	GN
B	YE	YE	GY	GY
N	GY	GY	BK	BK
Light reserve warning	-	-	-	RD
A inv.	-	RD	YE	YE
B inv.	-	BK, (BU at ACA)	PK	PK
N inv.	-	VT	VT	VT
Shield	flex	flex	flex	flex

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



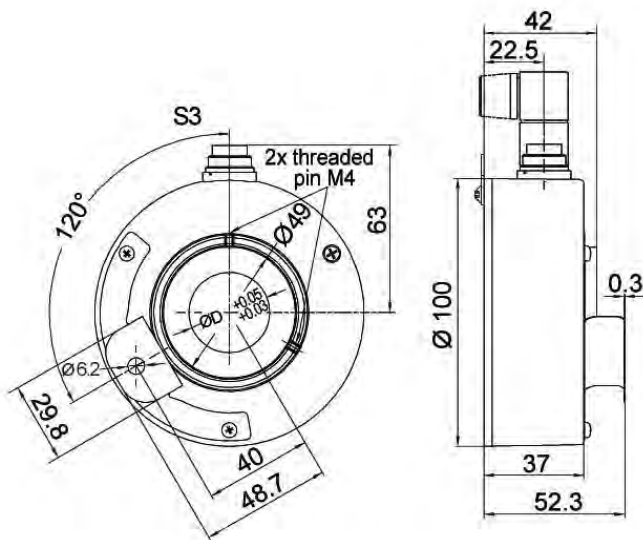
Description

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

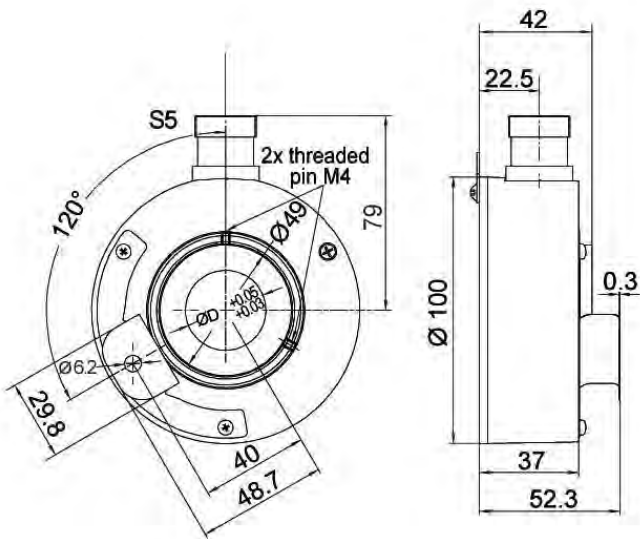
	SH5	SH6	SH8	SH8	SH8	SH12	SH12	SH12
	5-pin	6-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin
Circuit	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	P05, R05, P24, R24, 245, 645, R30	F05, H05, F24, H24, H30	SIN
GND	1	6	1	1	1	K, L	K, L	K, L
(+) Vcc	2	1	2	2	2	M, B	M, B	M, B
A	3	2	3	3	3	E	E	E
B	4	4	4	4	4	H	H	H
N	5	3	5	5	5	C	C	C
Light reserve warning	-	-	-	-	-	-	-	-
A inv.	-	-	-	6	6	F	-	F
B inv.	-	-	-	7	7	A	-	A
N inv.	-	-	-	8	8	D	-	D
n. c.	-	5	6, 7, 8	-	-	G, J	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-	-	-

Connector (M16x0.75) S3, 7-pin**Description****ABN inv. poss.****S3** radial, 7-pin, Connector connected to encoder housing

-

Assignments	
	S3
	7-pin
Circuit	F05, H05, F24, H24, H30
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

Connector (M23) S5, 12-pin



Description

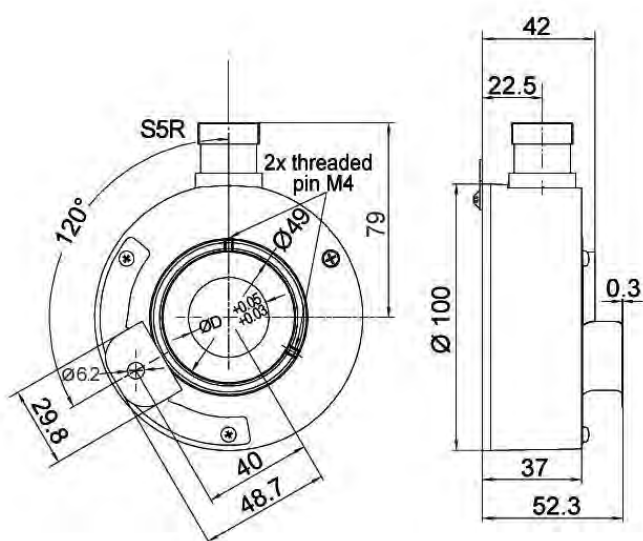
ABN inv. poss.

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

•

Assignments				
	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

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



Description

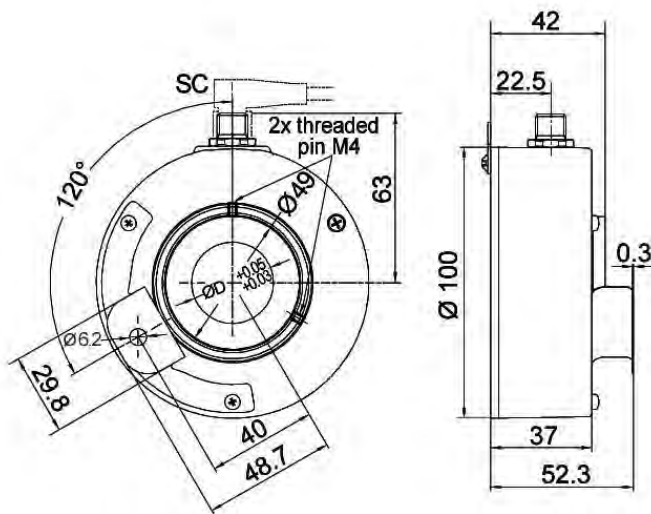
ABN inv. poss.

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

•

Assignments				
	S5R	S5R	S5R	S5R
	12-pin	12-pin	12-pin	12-pin
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	-	-	-	7
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11	2, 9, 11
Shield	-	-	-	-

Sensor-connector (M12x1) SC, 4-, 5-, 8-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	•

Assignments					
	SC4	SC5	SC8	SC8	SC8
	4-pin	5-pin	8-pin	8-pin	8-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
GND	3	3	1	1	1
(+) Vcc	1	1	2	2	2
A	2	4	3	3	3
B	4	2	4	4	5
N	-	5	5	5	7
Light reserve warning	-	-	-	-	-
A inv.	-	-	-	6	4
B inv.	-	-	-	7	6
N inv.	-	-	-	8	8
n. c.	-	-	6, 7, 8	-	-
Shield	-	-	-	-	-

Options

Low temperature

Order key

The encoder WDG 100G with the output circuit types F24, H24, P24, R24, F05, H05, P05, R05, 245, 645 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

ACA

Cable length

Order key

The encoder WDG 100G 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

Example Order No.	Type					Your encoder
WDG 100G	WDG 100G					WDG 100G
	Bore size					
25	25; 1Z= Ø 25.4 mm,Ø 1"; 28; 30; 32; 35; 36; 38; 40; 42; 45					
	Pulses per revolution PPR:					
1024	512, 1000, 1024, 2048, 2500, 3600, 4096, 4500, 5000, 8192, 10240, 16384, 20480 1 Vpp Sin/Cos only 1024, 2048 Other PPRs on request					
	Channels:					
ABN	AB, ABN					
	Output circuit					
H24	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	-	H05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05	
		10 - 30	HTL	-	H24	
		10 - 30	HTL inverted	-	R24	
		10 - 30	TTL, RS422 comp., inverted	-	245	
		4.75 - 5.5	TTL	-	F05	
	8192 up to 20480	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	•	SIF
	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	
	Options					
	Description			Order key		
	Low temperature			ACA		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 100G	25	1024	ABN	H24	K3		WDG 100G							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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www.wachendorff-automation.de





Online Data Sheet

인크리멘탈 할로우 샤프트 옵티컬 로터리 엔코더 - Ø145mm

WDG 145H 시리즈

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Encoder WDG 145H

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IndustrieROBUST

Encoder WDG 145H



1. 견고한 투과형(Thru-Bore) 중공축 로터리 엔코더
- 대형 파워 모터 대응

2. 다양한 대형 Bore 사이즈 적용 가능
- 45, 48, 50, 55, 60, 65, 72mm

3. 옵티컬(Optical) 방식으로 고정밀
- 1024PPR, 2500PPR

4. 최대 IP64의 보호등급

5. UL 및 CE 인증 제품

Resolution

Max. pulses per revolution up to 2500 PPR
PPR

Mechanical Data

Housing

Flange	hollow shaft (through-bored)
Flange material	aluminum
Housing cap	aluminum
Torque supports	incl. 3 torque supports WDGDS10001
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
- 2. Cylinder pin 4 mm	needs accessories WDGDS10005
- Compensation	axial: ± 0.5 mm, radial: ± 1.5 mm, Max. operating speed: 800 rpm
Housing	$\varnothing 145$ mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 1.5 Ncm at ambient temperature
Fixing	permanently attached clamping ring

Shaft $\varnothing 45$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 48$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 50$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 55$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 60$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 65$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Shaft $\varnothing 72$ mm

Shaft length L: 58 mm

Max. Permissible shaft loading radial 200 N

Max. Permissible shaft loading axial 100 N

Bearings

Bearings type 2 precision ball bearings

Nominal service life
3 x 10¹⁰ revs. at 100 % rated shaft load
4 x 10¹¹ revs. at 40 % rated shaft load
3 x 10¹² revs. at 20 % rated shaft load

Max. operating speed 1600 rpm

Machinery Directive: basic data safety integrity level

MTTF_d 200 a

Mission time (TM) 25 a

Nominal service life (L10h) 3 x 10¹² revs. at 20 % rated shaft load and 1600 rpm

Diagnostic coverage (DC) 0 %

Electrical Data

Power supply/Current consumption 4,75 VDC up to 5,5 VDC: typ. 70 mA

Power supply/Current consumption 10 VDC up to 30 VDC: typ. 70 mA

Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv.
Pulse frequency	TTL ≤ 2500 ppr: max. 200 kHz HTL ≤ 2500 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	circuit type G24, H24, I24, R24 only

Accuracy

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

General Data

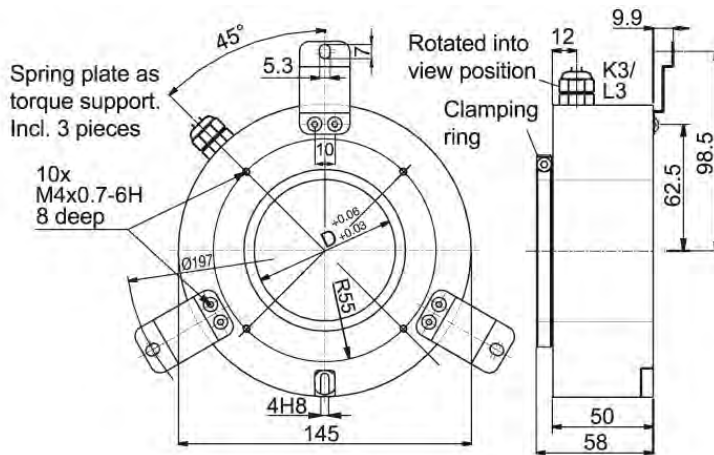
Weight	approx. 1700 g up to 2500 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP54
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

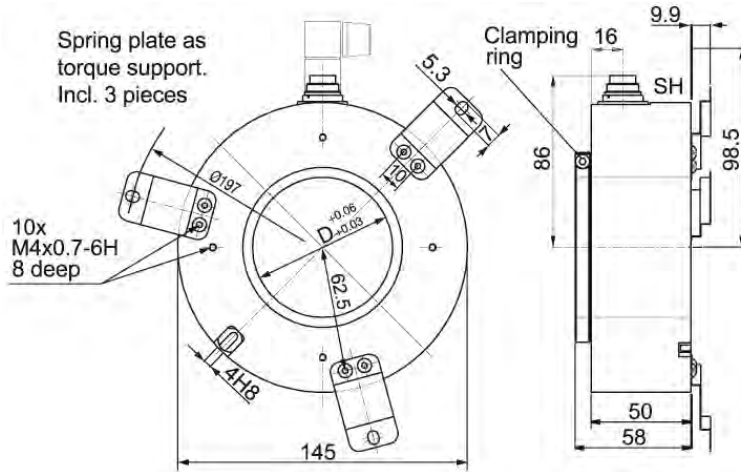
Cable connection K3, L3 with 2 m cable



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

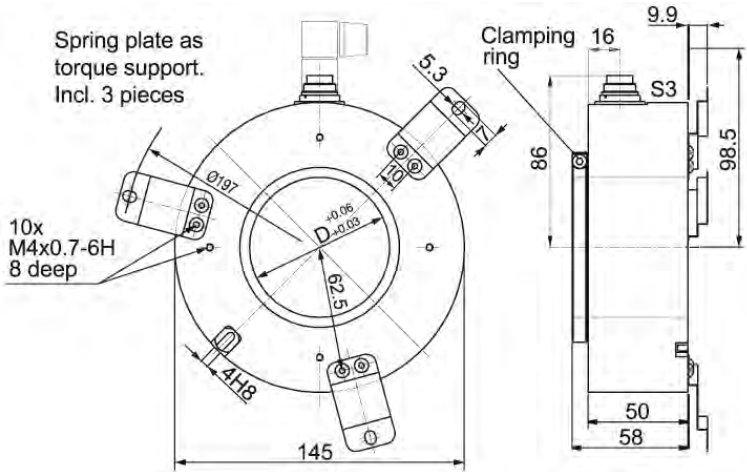
Assignments				
	K3, L3	K3, L3	K3, L3	K3, L3
Circuit	G05, G24	H05, H24	I05, I24	R05, R24
GND	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN
A	GN	GN	GN	GN
B	YE	YE	YE	YE
N	GY	GY	GY	GY
Light reserve warning	PK	-	PK	-
A inv.	-	-	RD	RD
B inv.	-	-	BK, (BU at ACA)	BK, (BU at ACA)
N inv.	-	-	VT	VT
Shield	flex	flex	flex	flex

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



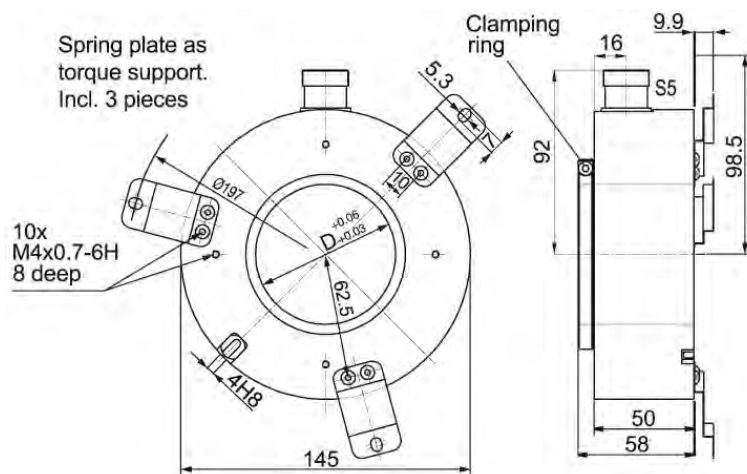
Description	ABN inv. poss.
SH5 radial, 5-pin, Connector connected to encoder housing	-
SH6 radial, 6-pin, Connector connected to encoder housing	-
SH8 radial, 8-pin, Connector connected to encoder housing	•
SH12 radial, 12-pin, Connector connected to encoder housing	•

Assignments									
	SH5	SH6	SH6	SH8	SH8	SH12	SH12	SH12	SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin
Circuit	H05, H24	G05, G24	H05, H24	H05, H24	R05, R24	G05, G24	H05, H24	I05, I24	R05, R24
GND	1	6	6	1	1	K, L	K, L	K, L	K, L
(+) Vcc	2	1	1	2	2	M, B	M, B	M, B	M, B
A	3	2	2	3	3	E	E	E	E
B	4	4	4	4	4	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
B inv.	-	-	-	-	7	-	-	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
Shield	-	-	-	-	-	-	-	-	-

Connector (M16x0.75) S3, 7-pin**Description****ABN inv. poss.****S3** radial, 7-pin, Connector connected to encoder housing

-

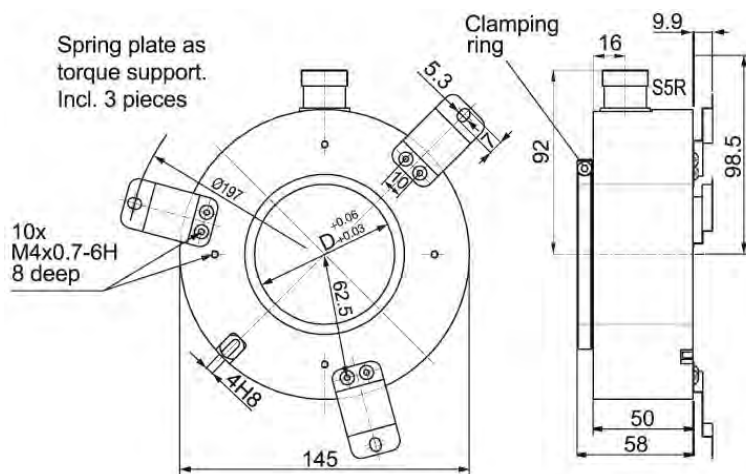
Assignments		
	S3	S3
	7-pin	7-pin
Circuit	G05, G24	H05, H24
GND	1	1
(+) Vcc	2	2
A	3	3
B	4	4
N	5	5
Light reserve warning	6	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	7	6, 7
Shield	-	-

Connector (M23) S5, 12-pin

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

•

Assignments				
	S5	S5	S5	S5
	12-pin	12-pin	12-pin	12-pin
Circuit	G05, G24	H05, H24	I05, I24	R05, R24
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	11	-	11	-
A inv.	-	-	6	6
B inv.	-	-	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
Shield	-	-	-	-

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

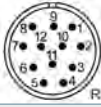
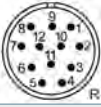
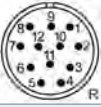
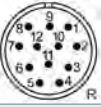


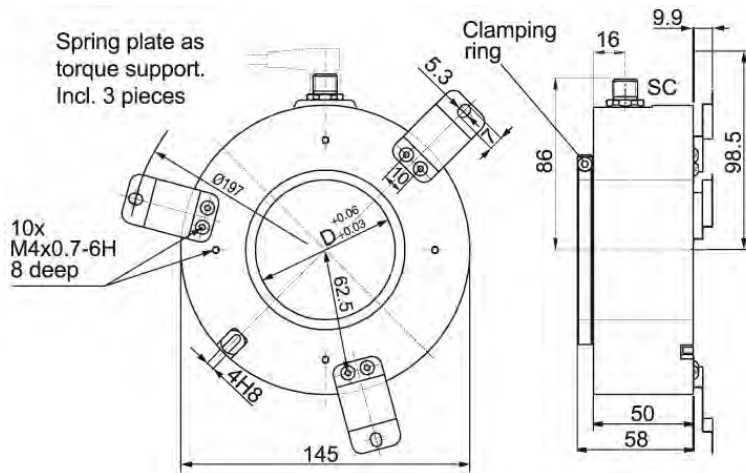
Description

ABN inv. poss.

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

•

Assignments				
	S5R	S5R	S5R	S5R
	12-pin	12-pin	12-pin	12-pin
				
Circuit	G05, G24	H05, H24	I05, I24	R05, R24
GND	10	10	10	10
(+) Vcc	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	3
Light reserve warning	11	-	11	-
A inv.	-	-	6	6
B inv.	-	-	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
Shield	-	-	-	-

Sensor-connector (M12x1) SC, 4-, 5-, 8-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	•

Assignments				
	SC4	SC5	SC8	SC8
	4-pin	5-pin	8-pin	8-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24
GND	3	3	1	1
(+) Vcc	1	1	2	2
A	2	4	3	3
B	4	2	4	4
N	-	5	5	5
Light reserve warning	-	-	-	-
A inv.	-	-	-	6
B inv.	-	-	-	7
N inv.	-	-	-	8
n. c.	-	-	6, 7, 8	-
Shield	-	-	-	-

Options

IP64 all around

The encoder WDG 145H can be supplied in a full IP64 version.

Order key

AEK

Max. RPM: 500 rpm

Starting-torque: approx. 5 Ncm at ambient temperature, approx. 1.416 in-ozf at ambient temperature

Cable length

The encoder WDG 145H 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: 5 m cable = 050

Order key

XXX = Decimeter

Example Order No.	Type					Your encoder
WDG 145H	WDG 145H					WDG 145H
	Bore size					
65	45; 48; 50; 55; 60; 65; 72					
	Pulses per revolution PPR:					
1024	1024, 2500 Other PPRs on request					
	Channels:					
ABN	AB, ABN					
	Output circuit					
G24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
	1024, 2500	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	
	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	
	Options					
	Description			Order key		
	IP64			AEK		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 145H	65	1024	ABN	G24	K3		WDG 145H							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

CREKEN

주식회사 크레켄

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