



Online Data Sheet

Encoder WDG 100G

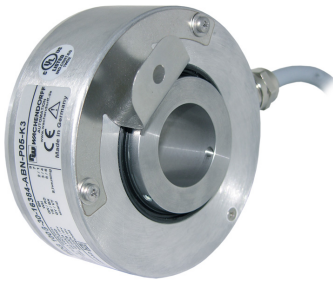
www.wachendorff-automation.com/wdg100g

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 100G



- Rugged and extremely thin thru-bore encoder for extension on power motors
- Thru-Bore, bore size max. 45 mm
- Full connection protection with 10 VDC up to 30 VDC
- Easy mounting
- Meets protection class IP50
- Up to 20,480 PPR
- Optional: -40 °C up to +80 °C

www.wachendorff-automation.com/wdg100g

Resolution	
Pulses per revolution PPR	up to 20480 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
Nominale 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
Nominale 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 V _{pp} 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 V _{pp} sin/cos: max. 100 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel @ 1 V _{pp} sin/cos: min. 120 Ohm
Circuit protection	circuit type H24 and R24 only

Accuracy

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

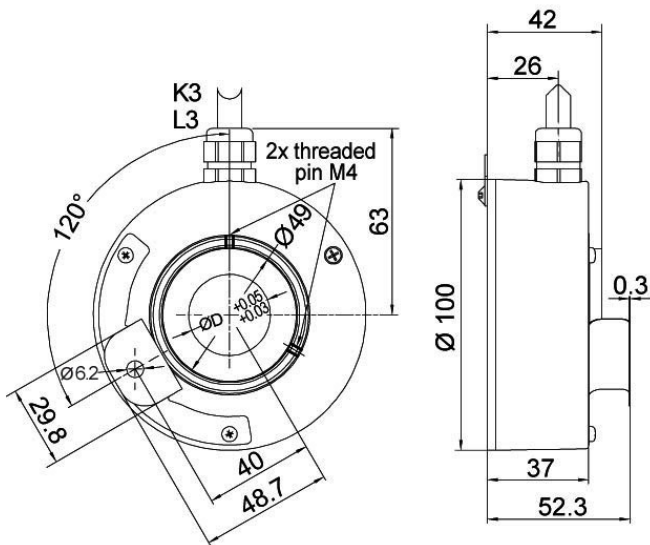
General Data

Weight	approx. 720 g
Connections	cable or connector, radial
Protection rating (EN 60529)	IP50
Operating temperature	-20 °C up to +80 °C 1 V _{pp} : -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

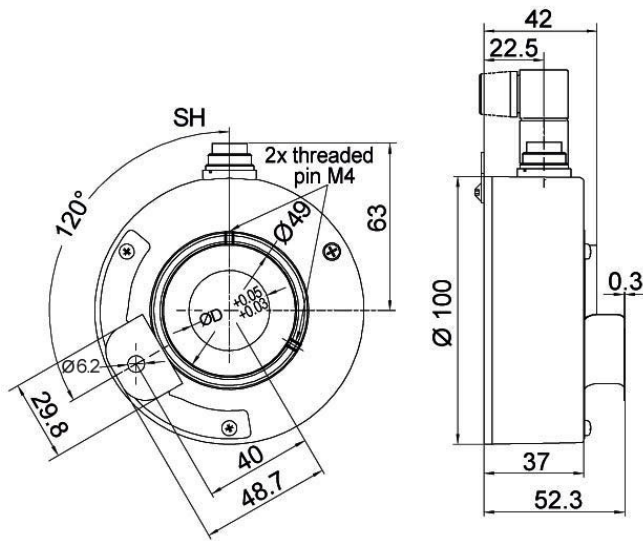
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L3 radial, shield connected to encoder housing

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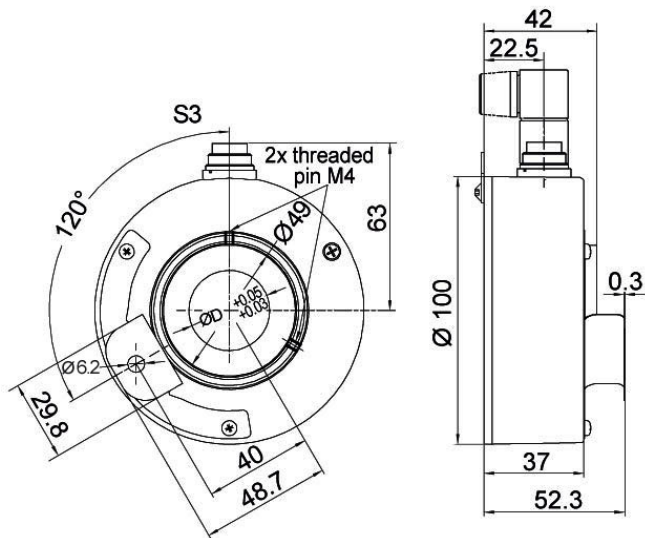
Assignments				
	K3, L3	K3, L3	L3	L3
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN	SIF
GND	WH	WH	WH	WH
(+) Vcc	BN	BN	BN	BN
A	GN	GN	GN	GN
B	YE	YE	GY	GY
N	GY	GY	BK	BK
Light reserve warning	-	-	-	RD
A inv.	-	RD	YE	YE
B inv.	-	BK, (BU at ACA)	PK	PK
N inv.	-	VT	VT	VT
Shield	flex	flex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

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

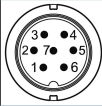


Description	ABN inv. poss.
SH5 radial, 5-pin, Connector connected to encoder housing	-
SH6 radial, 6-pin, Connector connected to encoder housing	-
SH8 radial, 8-pin, Connector connected to encoder housing	•
SH12 radial, 12-pin, Connector connected to encoder housing	•

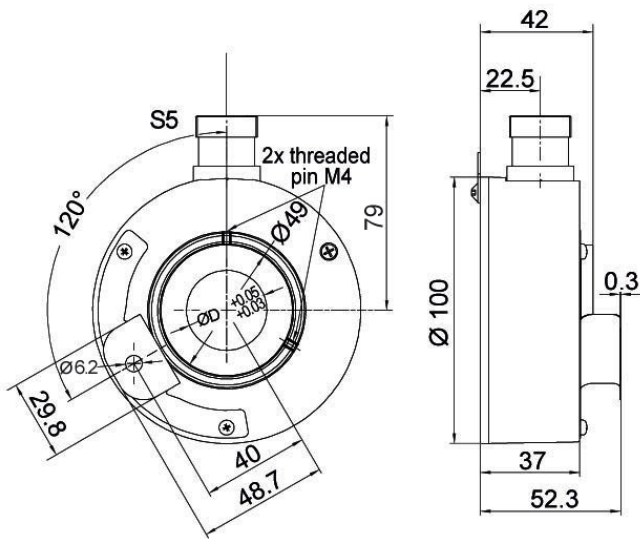
Assignments	SH5 5-pin	SH6 6-pin	SH8 8-pin	SH8 8-pin	SH8 8-pin	SH12 12-pin	SH12 12-pin	SH12 12-pin
Circuit	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	P05, R05, P24, R24, 245, 645, R30	F05, H05, F24, H24, H30	SIN
GND	1	6	1	1	1	K, L	K, L	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

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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

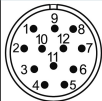
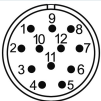
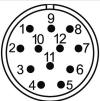
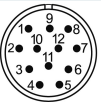


Description

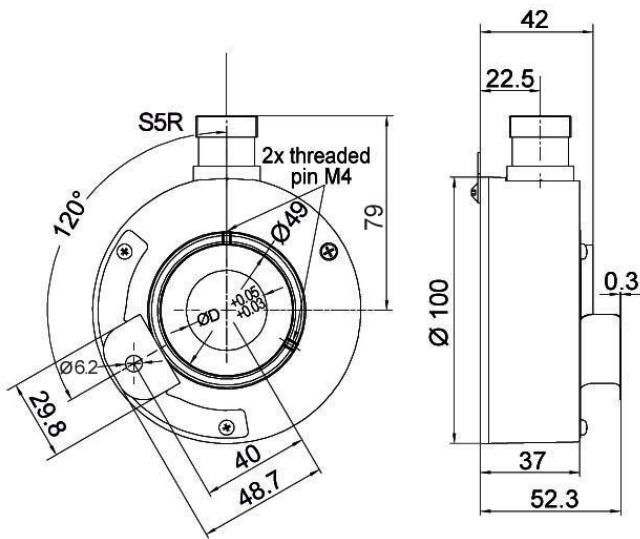
ABN inv. poss.

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)

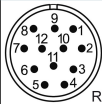
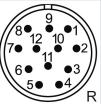
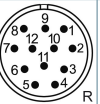
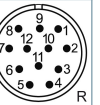


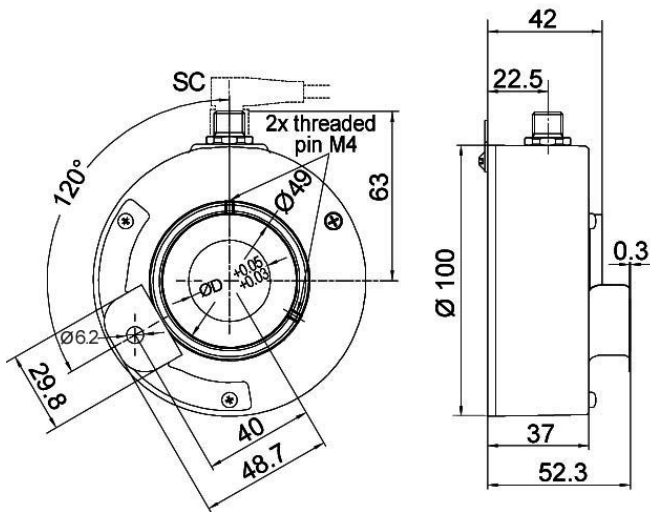
Description

ABN inv. poss.






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

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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

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).

Order key

ACA

Cable length

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

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 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, 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
	8192 up to 20480	10 - 30	TTL, RS422 comp., inverted	-	245
		4.75 - 5.5	TTL	-	F05
		4.75 - 5.5	TTL, RS422 comp., inverted	-	P05
		10 - 30	HTL	-	F24
	1024, 2048	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	
	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.
<https://www.wachendorff-automation.com/>



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