



Online Data Sheet

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

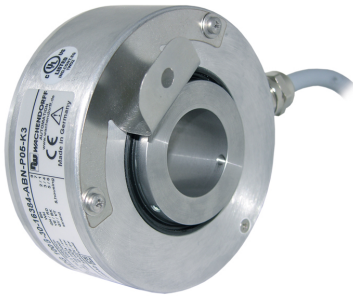
Wachendorff Automation ... systems and encoders

- 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 100G
www.wachendorff-automation.com/wdg100g

IndustrieROBUST

Encoder WDG 100G



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

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 FEFB00H013-ZVK
- 1. Spring pl compensation	axial: ± 1 mm [0.0394"], radial: ± 0.5 mm [0.0197"]
Housing	$\varnothing$ 100 mm [$\varnothing$ 3.543"]
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1.5 Ncm [2.124 in-ozf] at ambient temperature
Fixing	2 x M4, DIN 913; Starting torque: 2,5 Nm
Shaft	$\varnothing$ 25 mm [$\varnothing$ 0.984"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 28 mm [$\varnothing$ 1.102"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 30 mm [$\varnothing$ 1.181"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 32 mm [$\varnothing$ 1.26"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]

Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 38 mm [$\varnothing$ 1.496"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 40 mm [$\varnothing$ 1.575"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 42 mm [$\varnothing$ 1.654"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
Shaft	$\varnothing$ 45 mm [$\varnothing$ 1.772"]
Shaft length	L: 42 mm [1.654"]
Insertion depth min.	29 mm [1.142"]
Max. Permissible shaft loading radial	200 N [20.394 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]
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. 70 mA (100 mA only F05, P05)
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 (100 mA only F24, P24, 645)
Operating principle	optical
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 period duration
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %

Environmental data

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

Duty information

Customs tariff number:	90318020
Country of origin:	Germany

General Data

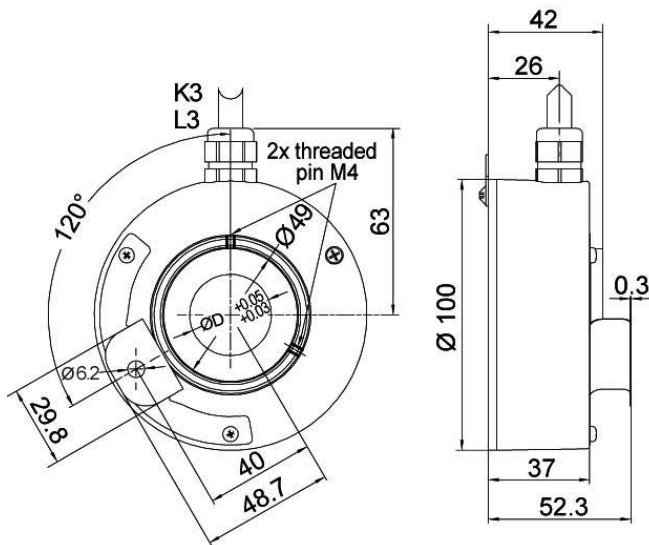
Weight	approx. 720 g [25.397 oz]
Connections	cable or connector, radial
Protection rating (EN 60529)	IP50
Operating temperature	-20 °C up to +80 °C [-4 °F up to +176 °F] 1 Vpp: -10 °C up to +70 °C [+14 °F up to +158 °F]
Storage temperature	-30 °C up to +80 °C [-22 °F up to 176 °F]

More Information

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

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

Cable connection K3, L3 with 2 m cable

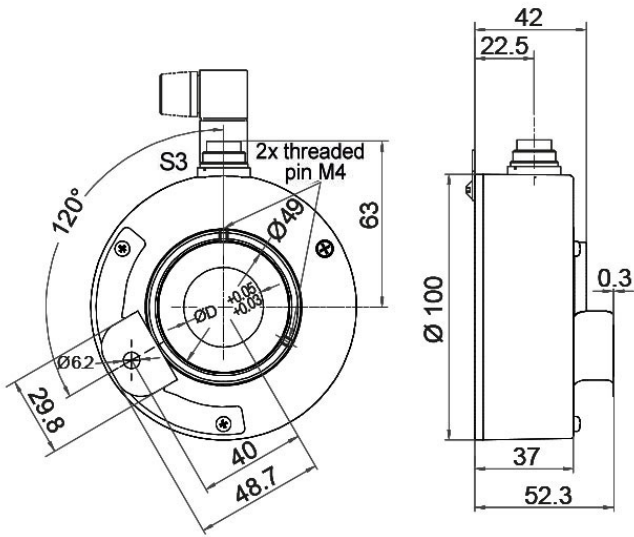


Description

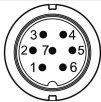
ABN inv. poss.

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

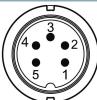
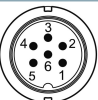
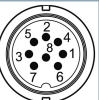
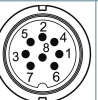
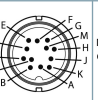
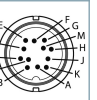
Assignments			
	K3, L3	K3, L3	L3
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN
GND	WH	WH	WH
(+) Vcc	BN	BN	BN
A	GN	GN	GN
B	YE	YE	GY
N	GY	GY	BK
-	-	-	-
A inv.	-	RD	YE
B inv.	-	BK, (BU at ACA)	PK
N inv.	-	VT	VT
Shield	flex	flex	flex

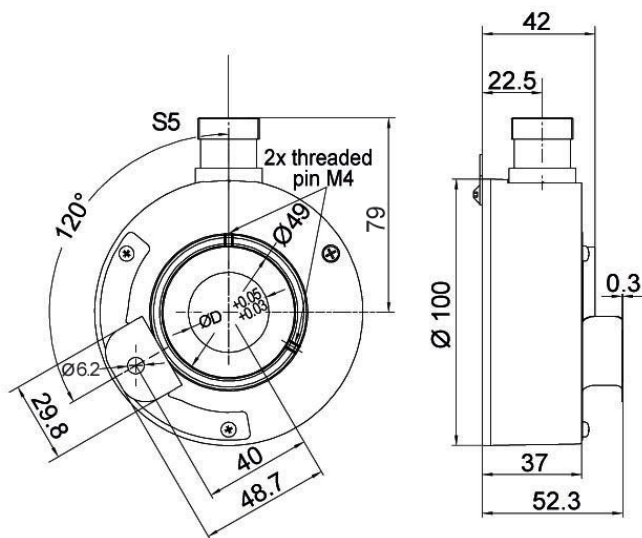
Connector (M16x0.75) S3, 7-pin**Description****ABN inv. poss.****S3** radial, 7-pin, Connector connected to encoder housing

-

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

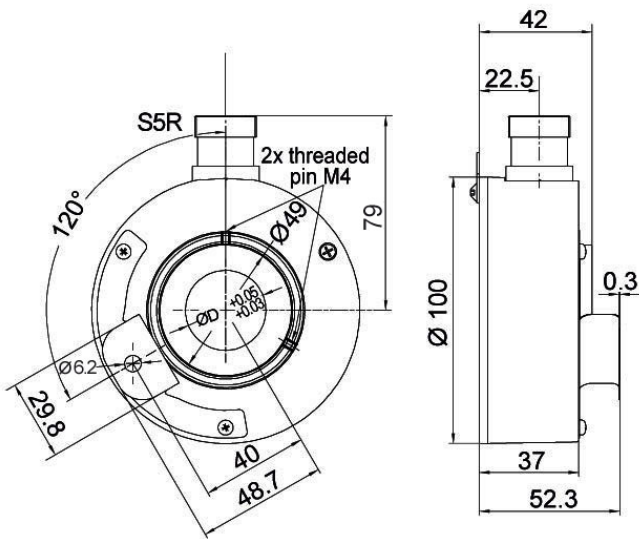
Description	ABN inv. poss.
SH5 radial, 5-pin, Connector connected to encoder housing	-
SH6 radial, 6-pin, Connector connected to encoder housing	-
SH8 radial, 8-pin, Connector connected to encoder housing	•
SH12 radial, 12-pin, Connector connected to encoder housing	•

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



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

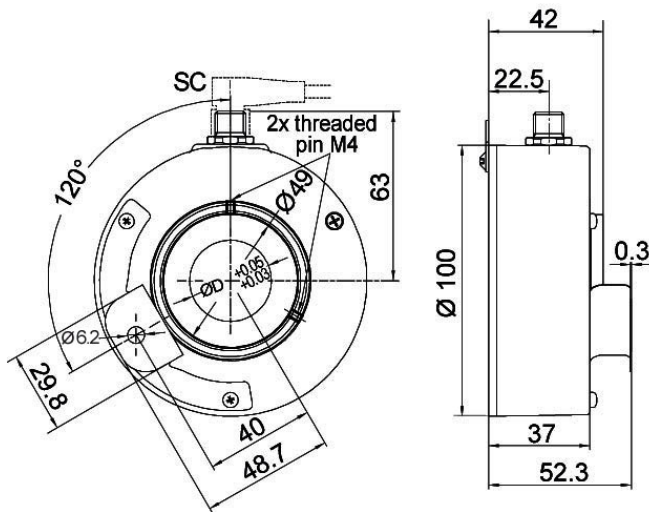
Assignments			
	S5	S5	S5
	12-pin	12-pin	12-pin
Circuit	F05, H05, F24, H24, H30	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10
(+) Vcc	12	12	12
A	5	5	5
B	8	8	8
N	3	3	3
-	-	-	-
A inv.	-	6	6
B inv.	-	1	1
N inv.	-	4	4
n.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 7, 9, 11
Shield	-	-	-

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

•

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

Sensor-connector (M12x1) SC, 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	SC12 12-pin
Circuit	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
GND	3	3	1	1	3
(+) Vcc	1	1	2	2	1
A	2	4	3	3	4
B	4	2	4	5	6
N	-	5	5	7	8
-	-	-	-	-	-
A inv.	-	-	6	4	9
B inv.	-	-	7	6	7
N inv.	-	-	8	8	10
n.	-	-	-	-	2, 5, 11, 12
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 [-40 °F up to +176 °F] (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 <https://www.wachendorff-automation.com/download-gtd-incremental-encoders/>

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; 28; 30; 32; 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	-	Order key			
	up to 2500	5 - 30	HTL (TTL at 5 VDC)	-	H30			
		5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	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			
		10 - 30	TTL, RS422 comp., inverted	-	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	-	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						
	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

CREKEN

주식회사 크레켄

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