



Online Data sheet

Encoder WDG 80H

www.wachendorff-automation.com/wdg80h

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 (optical)



- Rugged and economical encoder
- High protection class IP65
- Bore size: 10 mm up to 27 mm
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Easy mounting
- Optional: -40 °C up to +80 °C

www.wachendorff-automation.com/wdg80h

Resolution	
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	Ø 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	Ø 10 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 12 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 14 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 15 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm

Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 16 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 18 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 20 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 25 mm
Shaft length	L: 46 mm
Insertion depth min.	14 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	100 N
Shaft	Ø 27 mm
Shaft length	L: 46 mm
Insertion depth min.	14 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	3500 rpm

Options
<http://www.wachendorff-automation.com/acc>
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 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 V _{pp} sin/cos
Pulse frequency	TTL 3840 ppr: max. 200 kHz HTL 3840 ppr: max. 200 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 G24, H24, I24, R24 only

Accuracy

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

Environmental data

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

Duty information

Customs tariff number:	90318020
Country of origin:	Germany

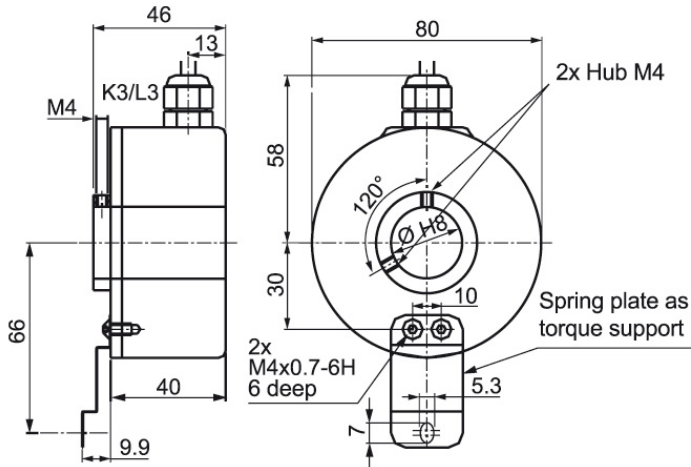
General Data

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 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>

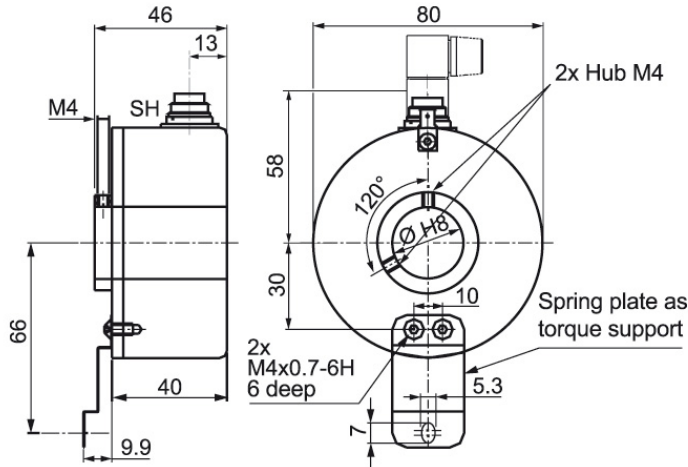
Cable connection K3, L3 with 2 m cable



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, 524	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

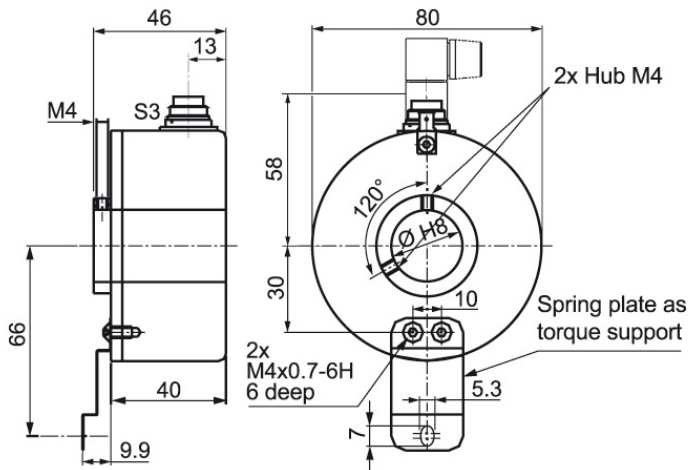
Connector (M16x0.75) SH, 5-, 6-, 8-, 12-pin



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

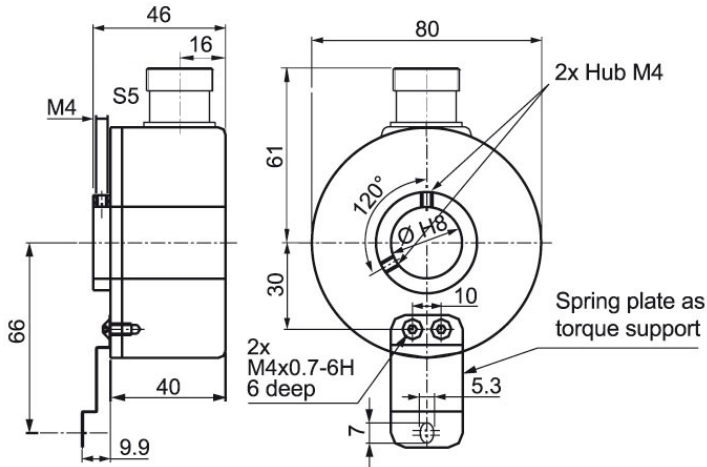
ABN inv. poss.

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

-

Assignments		
	S3	S3
	7-pin	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.

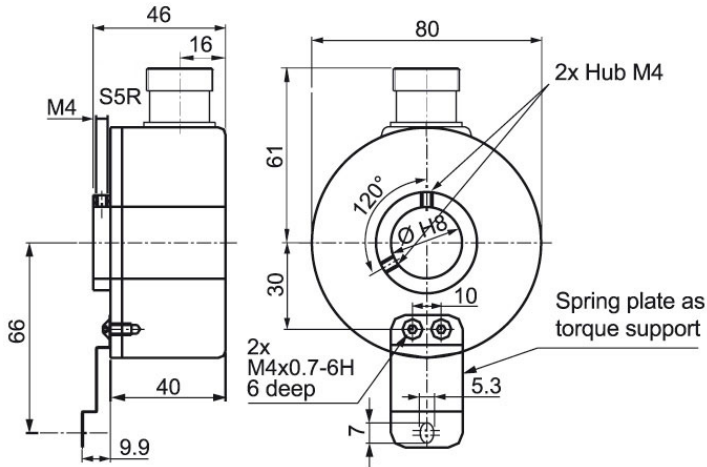
S5 radial, 12-pin, Connector connected to encoder housing

•

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, 524	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

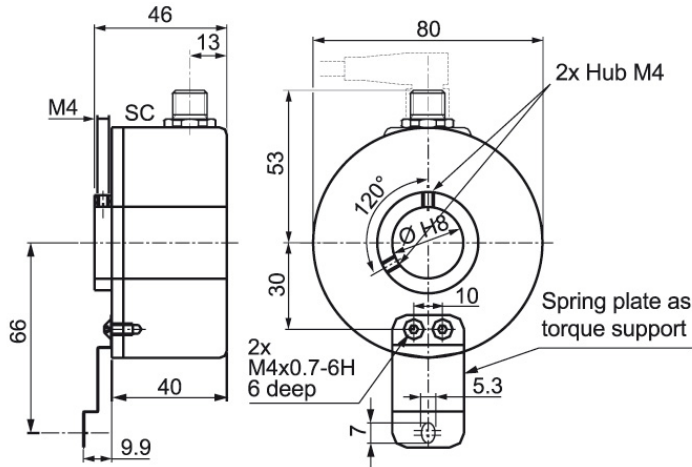
ABN inv. poss.

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, 524	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-, 12-pin



Description	ABN inv. poss.
SC4 radial, 4-pin, Connector connected to encoder housing	-
SC5 radial, 5-pin, Connector connected to encoder housing	-
SC8 radial, 8-pin, Connector connected to encoder housing	•
SC12 radial, 12-pin, Connector connected to encoder housing	•

Assignments	SC4	SC5	SC8	SC8	SC8	SC12	SC12	SC12	SC12
	4-pin	5-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin
Circuit	H05, H24, H30	H05, H24, H30	H05, H24, H30	R05, R24, R30, 245	SIN	G05, G24	I05, I24, 524	H05, H24, H30	R05, R24, 245, 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	7	8	8	8	8
Light reserve warning	-	-	-	-	-	5	5	-	-
A inv.	-	-	-	6	4	-	9	-	9
B inv.	-	-	-	7	6	-	7	-	7
N inv.	-	-	-	8	8	-	10	-	10
n. c.	-	-	6, 7, 8	-	-	2, 7, 9, 10, 11, 12	2, 11, 12	2, 5, 7, 9, 10, 11, 12	2, 5, 11, 12
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

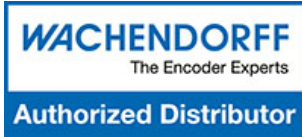
Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

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; 14; 15; 16; 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 (TTL at 5 VDC)	-	H30
		5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	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
	1024	10 - 30	TTL, RS422 comp., inverted	•	524
		10 - 30	TTL, RS422 comp., inverted	-	245
		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
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 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.
<https://www.wachendorff-automation.com/contact-sales-en/>

WACHENDORFF

Wachendorff Automation GmbH & Co. KG
Industriestrasse 7 • 65366 Geisenheim
Germany

Phone: +49 67 22 / 99 65 25
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

