

Online Data Sheet

Encoder WDG 70B - Discontinued product

www.wachendorff-automation.com/wdg70b

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 70B

Discontinued product



- Rugged industrial standard encoder
- Up to 25000 PPR by use of high grad electronics
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Optional: -40 °C up to +80 °C
Protection to IP67 all around

www.wachendorff-automation.com/wdg70b

Resolution	
Max. pulses per revolution PPR	up to 25000 PPR

Mechanical Data	
Housing	
Flange	clamping flange
Flange material	aluminium
Housing cap	aluminium, powder coated
Housing	Ø 70 mm

Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature

Shaft	Ø 12 mm
Shaft length	L: 26 mm
Max. Permissible shaft loading radial	200 N
Max. Permissible shaft loading axial	150 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	8000 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 8000 rpm
Diagnostic coverage (DC)	0 %

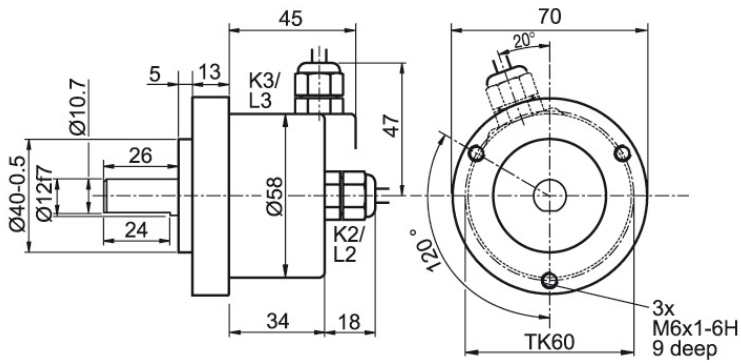
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 100 mA
Power supply/Current consumption	5 VDC up to 30 VDC: max. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: max. 100 mA

Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL 5000 ppr: max. 200 kHz HTL 5000 ppr: max. 200 kHz TTL more than 1200 ppr: max. 2 MHz HTL more than 1200 ppr: max. 600 kHz 1 Vpp sin/cos: max. 100 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel @ 1 Vpp sin/cos: min. 120 Ohm
Circuit protection	circuit type F24, G24, H24, I24, P24, R24 only

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

General Data	
Weight	approx. 380 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP65 all around with S7)
Operating temperature	-20 °C up to +80 °C 1 Vpp: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

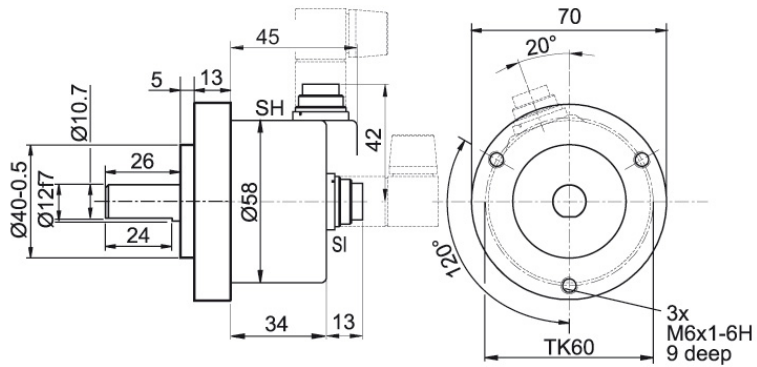
More Information	
General technical data	http://www.wachendorff-automation.com/gtd
Options	http://www.wachendorff-automation.com/acc

Cable connection K2, K3, L2, L3 with 2 m cable

Description
ABN inv. poss.












K2	axial, shield not connected	•
K3	radial, shield not connected	•
L2	axial, shield connected to encoder housing	•
L3	radial, shield connected to encoder housing	•

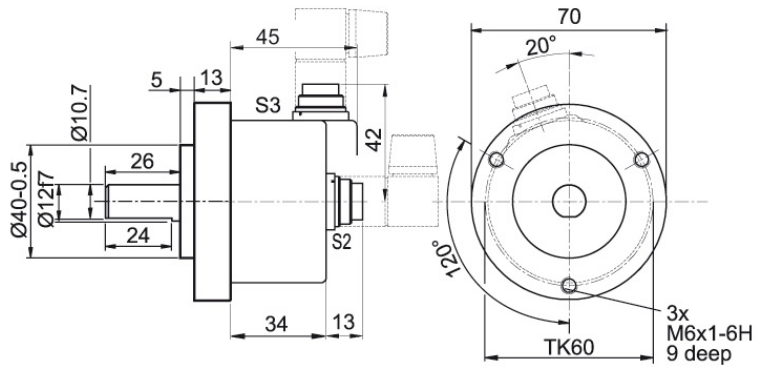
Assignments

	K2, K3, L2, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, 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

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




Description	ABN inv. poss.
SI5 axial, 5-pin, Connector connected to encoder housing	-
SH5 radial, 5-pin, Connector connected to encoder housing	-
SI6 axial, 6-pin, Connector connected to encoder housing	-
SH6 radial, 6-pin, Connector connected to encoder housing	-
SI8 axial, 8-pin, Connector connected to encoder housing	•
SH8 radial, 8-pin, Connector connected to encoder housing	•
SI12 axial, 12-pin, Connector connected to encoder housing	•
SH12 radial, 12-pin, Connector connected to encoder housing	•

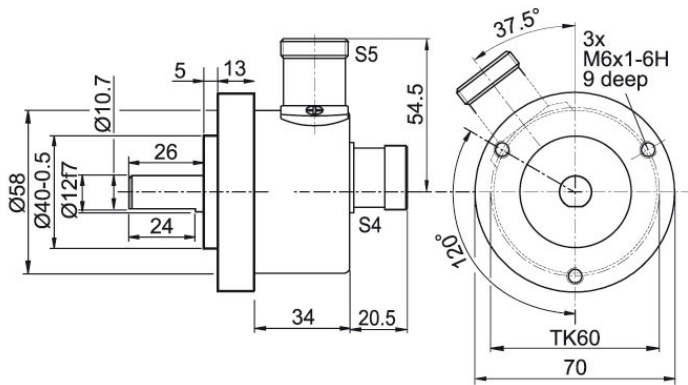
Assignments	SI5, SH5	SI6, SH6	SI6, SH6	SI8, SH8	SI8, SH8	SI8, SH8	SI12, SH12	SI12, SH12	SI12, SH12	SI12, SH12	SI12, SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin	12-pin
											
Circuit	F05, H05, F24, H24, H30	G05, G24	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	1	6	6	1	1	1	K, L	K, L	K, L	K, L	K, L
(+) Vcc	2	1	1	2	2	2	M, B	M, B	M, B	M, B	M, B
A	3	2	2	3	3	3	E	E	E	E	E
B	4	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	6	-	-	F	F	F
B inv.	-	-	-	-	7	7	-	-	A	A	A
N inv.	-	-	-	-	8	-	-	-	D	D	-
n. c.	-	-	5	6, 7, 8	-	5, 8	A, D, F, J	A, D, F, G, J	J	G, J	D, G, J
Shield	-	-	-	-	-	-	-	-	-	-	-

Connector (M16x0.75) S2, S3, 7-pin

Description
ABN inv. poss.

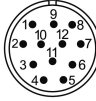
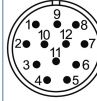
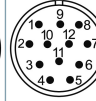
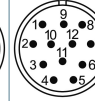
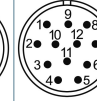
S2	axial, 7-pin, Connector connected to encoder housing	-
S3	radial, 7-pin, Connector connected to encoder housing	-

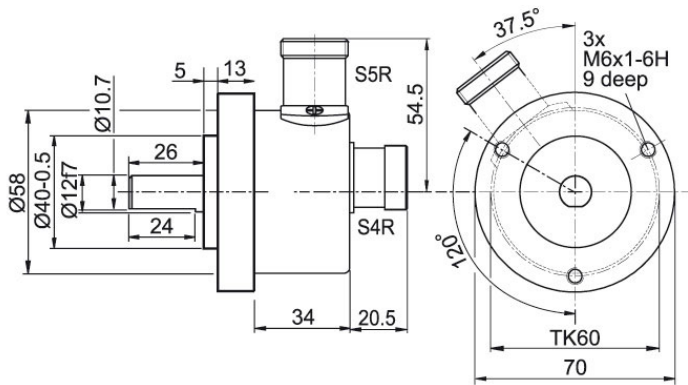
Assignments

	S2, S3 7-pin	S2, S3 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	-	-

Connector (M23) S4, S5, 12-pin

Description
ABN inv. poss.

S4	axial, 12-pin, Connector connected to encoder housing	•
S5	radial, 12-pin, Connector connected to encoder housing	•

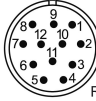
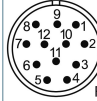
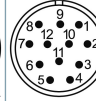
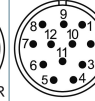
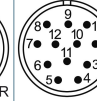
Assignments					
	S4, S5	S4, S5	S4, S5	S4, S5	S4, S5
	12-pin	12-pin	12-pin	12-pin	12-pin
					
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10	10
(+) Vcc	12	12	12	12	12
A	5	5	5	5	5
B	8	8	8	8	8
N	3	3	3	3	-
Light reserve warning	11	-	11	-	-
A 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	-	-	-	-	-

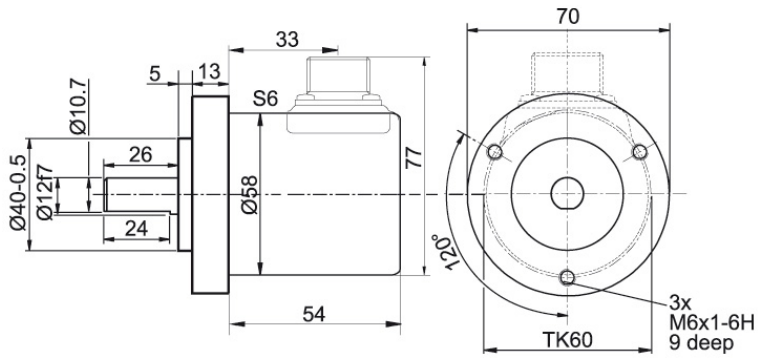
Connector (M23) S4R, S5R, 12-pin (clockwise)

Description
ABN inv. poss.
S4R axial, 12-pin, Connector connected to encoder housing



•

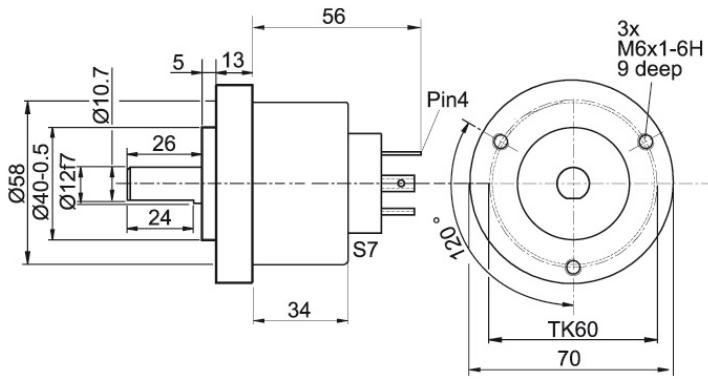
S5R radial, 12-pin, Connector connected to encoder housing


•

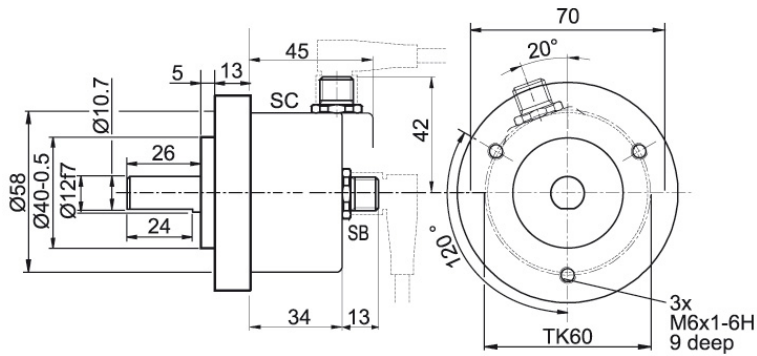
Assignments					
	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R
	12-pin	12-pin	12-pin	12-pin	12-pin
					
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10	10
(+) Vcc	12	12	12	12	12
A	5	5	5	5	5
B	8	8	8	8	8
N	3	3	3	3	-
Light reserve warning	11	-	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	-	-	-	-	-

MIL-connector S6, 6-pin

Description
ABN inv. poss.










Assignments		
	6-pin	6-pin
		
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	A	A
(+) Vcc	F	F
A	C	C
B	B	B
N	D	D
Light reserve warning	E	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	-	E
Shield	-	-

Valve-connector (IP65) S7, 4-pin

Description
ABN inv. poss.

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

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


Description	ABN inv. poss.
SB4 axial, 4-pin, Connector connected to encoder housing	-
SC4 radial, 4-pin, Connector connected to encoder housing	-
SB5 axial, 5-pin, Connector connected to encoder housing	-
SC5 radial, 5-pin, Connector connected to encoder housing	-
SB8 axial, 8-pin, Connector connected to encoder housing	•
SC8 radial, 8-pin, Connector connected to encoder housing	•
SB12 axial, 12-pin, Connector connected to encoder housing	•
SC12 radial, 12-pin, Connector connected to encoder housing	•

Assignments	SB4, SC4	SB5, SC5	SB8, SC8	SB8, SC8	SB8, SC8	SB12, SC12	SB12, SC12	SB12, SC12	SB12, SC12
	4-pin	5-pin	8-pin	8-pin	8-pin	12-pin	12-pin	12-pin	12-pin
									
Circuit	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30
GND	3	3	1	1	1	3	3	3	3
(+) Vcc	1	1	2	2	2	1	1	1	1
A	2	4	3	3	3	4	4	4	4
B	4	2	4	4	5	6	6	6	6
N	-	5	5	5	-	8	8	8	8
Light reserve warning	-	-	-	-	-	5	-	5	-
A inv.	-	-	-	6	4	-	-	9	9
B inv.	-	-	-	7	6	-	-	7	7
N inv.	-	-	-	8	-	-	-	10	10
n. c.	-	-	6, 7, 8	-	7, 8	2, 7, 9, 10, 11, 12	2, 5, 7, 9, 10, 11, 12	2, 11, 12	2, 5, 11, 12
Shield	-	-	-	-	-	-	-	-	-

Options

Low temperature

Order key

The encoder WDG 70B - Discontinued product 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 +80 °C (measured at the flange).

Cable length

Order key

The encoder WDG 70B - Discontinued product can be supplied with more than 2 m cable. **XXX = Decimeter**
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

IP67 Shafts sealed to IP67 (not for 1 Vss Sin/Cos)

Order key

The encoder WDG 70B - Discontinued product can be supplied in a full IP67 version. **AAO**

Max. RPM: 3200 rpm
Permitted Shaft-Loading, axial: 110 N
Permitted Shaft-Loading, radial: 110 N
Max. PPR: 2500 ppr
Starting-torque: approx. 5 Ncm at ambient temperature

Example Order No.	Type					Your encoder
WDG 70B	WDG 70B					WDG 70B
Pulses per revolution PPR:						
5000	2, 5, 10, 15, 20, 24, 25, 30, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 236, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 625, 720, 750, 768, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000, 10000, 12500, 20000, 25000 1 Vss Sin/Cos only 1024, 2048 Other PPRs on request					
Channels:						
ABN	AB, ABN (SIN: AB)					
Output circuit						
G24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
	up to 2500	5 - 30	HTL	-	H30	
		5 - 30	HTL inverted	-	R30	
	up to 5000	4.75 - 5.5	TTL	•	G05	
		4.75 - 5.5	TTL	-	H05	
		4.75 - 5.5	TTL, RS422 comp., inverted	•	I05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05	
		10 - 30	HTL	•	G24	
		10 - 30	HTL	-	H24	
		10 - 30	HTL inverted	•	I24	
		10 - 30	HTL inverted	-	R24	
		10 - 30	TTL, RS422 comp., inverted	•	524	
		10 - 30	TTL, RS422 comp., inverted	-	245	
	(higher frequency) 1200 up to 25000	4.75 - 5.5	TTL	-	F05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	P05	
		10 - 30	HTL	-	F24	
		10 - 30	HTL inverted	-	P24	
		10 - 30	TTL, RS422 comp., inverted	-	645	
	1024, 2048	4.75 - 5.5	1 Vpp sin/cos	-	SIN	

Electrical connections			
Description	ABN inv. poss.	Order key	
Cable: length (2 m standard, WDG 58T: 1 m)			
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, 5-pin, radial	-	SH5	
connector, M16x0.75, 6-pin, axial	-	SI6	
connector, M16x0.75, 6-pin, radial	-	SH6	
connector, M16x0.75, 8-pin, axial	•	SI8	
connector, M16x0.75, 8-pin, radial	•	SH8	
connector, M16x0.75, 12-pin, axial	•	SI12	
connector, M16x0.75, 12-pin, radial	•	SH12	
connector, M16x0.75, 7-pin, axial	-	S2	
connector, M16x0.75, 7-pin, radial	-	S3	
connector, M23, 12-pin, axial	•	S4	
connector, clockwise pin count, M23, 12-pin, axial	•	S4R	
connector, M23, 12-pin, radial	•	S5	
connector, clockwise pin count, M23, 12-pin, radial	•	S5R	
sensor-connector, M12x1, 4-pin, axial	-	SB4	
sensor-connector, M12x1, 4-pin, radial	-	SC4	
sensor-connector, M12x1, 5-pin, axial	-	SB5	
sensor-connector, M12x1, 5-pin, radial	-	SC5	
sensor-connector, M12x1, 8-pin, axial	•	SB8	
sensor-connector, M12x1, 8-pin, radial	•	SC8	
sensor-connector, M12x1, 12-pin, axial	•	SB12	
sensor-connector, M12x1, 12-pin, radial	•	SC12	
Options			
Description	Order key		
Without option	Empty		
Low temperature	ACA		
IP67	AAO		
Cable length	XXX = Decimeter		

Example Order No.=	WDG 70B	5000	ABN	G24	K2							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



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

Phone: +49 67 22 / 99 65 25
Fax: +49 67 22 / 99 65 70
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

