

# Online Data Sheet

## Encoder WDG 63Q - Discontinued product

[www.wachendorff-automation.com/wdg63q](http://www.wachendorff-automation.com/wdg63q)

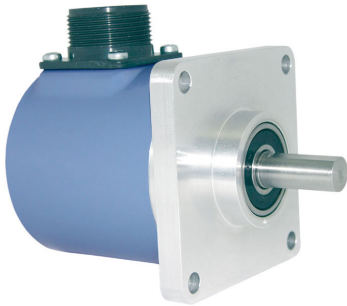
### **Wachendorff Automation**

#### **... 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 63Q

## Discontinued product



- 3/8" stainless steel shaft
- Up to 25000 PPR by use of high grad electronics
- Protection to IP67, shaft sealed to IP65
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Optional: -40 °C up to +80 °C [-40 °F à +176 °F], Protection to IP67 all around

[www.wachendorff-automation.com/wdg63q](http://www.wachendorff-automation.com/wdg63q)

### Resolution

Max. pulses per revolution PPR	up to 25000 PPR
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### Mechanical Data

#### Housing

Flange	square flange
Flange material	aluminium
Housing cap	aluminium, powder coated
Housing	Ø 63.5 mm, Ø 2.5 in

#### Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature, approx. 1.416 in-ozf at ambient temperature

Shaft	Ø 3/8", 9.525 mm
Shaft length	L: 22.3 mm, L: 0.874 in
Max. Permissible shaft loading radial	220 N, 22.434 kp
Max. Permissible shaft loading axial	120 N, 12.237 kp

#### Bearings

Bearings type	2 precision ball bearings
Nominale service life	1 x 10 <sup>9</sup> revs. at 100 % rated shaft load 1 x 10 <sup>10</sup> revs. at 40 % rated shaft load 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

#### Machinery Directive: basic data safety integrity level

MTTF <sub>d</sub>	200 a
Mission time (TM)	25 a
Nominale service life (L10h)	1 x 10 <sup>11</sup> 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
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Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
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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
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Channels	AB ABN and inverted signals 1 Vpp Sin/Cos
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Load	max. 40 mA / channel @ 1 Vpp sin/cos: min. 120 Ohm
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Circuit protection	circuit type F24, G24, H24, I24, P24, R24 only
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#### Accuracy

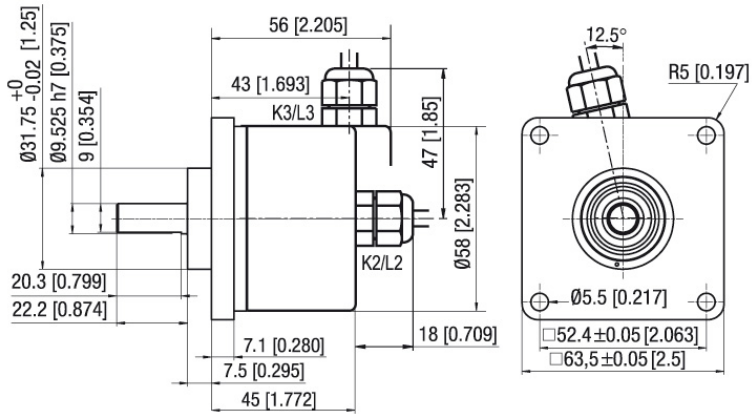
Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	5000 ppr: 50 % ± max. 7 % >5000 ppr: 50 % ± max. 10 %

#### General Data

Weight	approx. 300 g, approx. 9.877 oz
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, -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

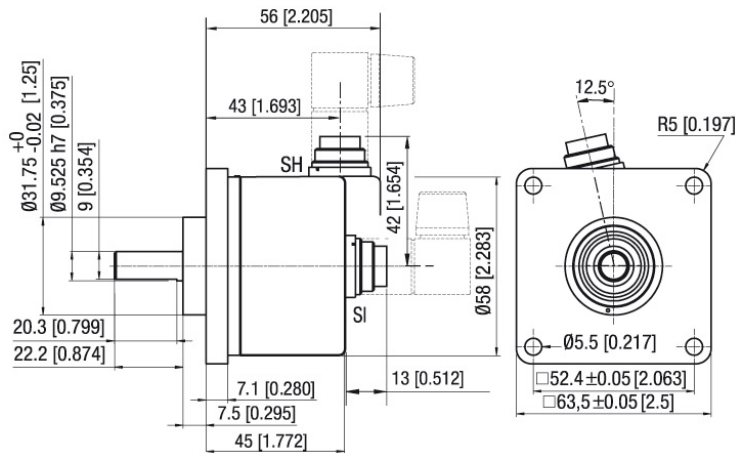
General technical data	<a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a>
Options	<a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a>

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

**Description**
**ABN inv. poss.**

<b>K2</b>	axial, shield not connected	•
<b>K3</b>	radial, shield not connected	•
<b>L2</b>	axial, shield connected to encoder housing	•
<b>L3</b>	radial, shield connected to encoder housing	•

**Assignments**

	<b>K2, K3, L2, L3</b>	<b>K2, L2, K3, L3</b>	<b>K2, L2, K3, L3</b>	<b>K2, L2, K3, L3</b>	<b>K2, L2, K3, L3</b>
<b>Circuit</b>	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
<b>GND</b>	WH	WH	WH	WH	WH
<b>(+) Vcc</b>	BN	BN	BN	BN	BN
<b>A</b>	GN	GN	GN	GN	GN
<b>B</b>	YE	YE	YE	YE	GY
<b>N</b>	GY	GY	GY	GY	-
<b>Light reserve warning</b>	PK	-	PK	-	-
<b>A inv.</b>	-	-	RD	RD	YE
<b>B inv.</b>	-	-	BK, (BU at ACA)	BK, (BU at ACA)	PK
<b>N inv.</b>	-	-	VT	VT	-
<b>Shield</b>	flex	flex	flex	flex	flex

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

**Description**
**ABN inv. poss.**

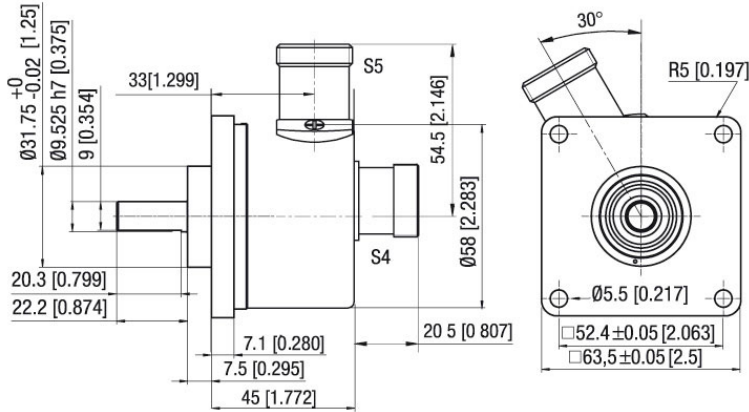
<b>SI5</b>	axial, 5-pin, Connector connected to encoder housing	-
<b>SH5</b>	radial, 5-pin, Connector connected to encoder housing	-
<b>SI6</b>	axial, 6-pin, Connector connected to encoder housing	-
<b>SH6</b>	radial, 6-pin, Connector connected to encoder housing	-
<b>SI8</b>	axial, 8-pin, Connector connected to encoder housing	•
<b>SH8</b>	radial, 8-pin, Connector connected to encoder housing	•
<b>SI12</b>	axial, 12-pin, Connector connected to encoder housing	•
<b>SH12</b>	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
<b>Circuit</b>	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
<b>GND</b>	1	6	6	1	1	1	K, L	K, L	K, L	K, L	K, L
<b>(+) Vcc</b>	2	1	1	2	2	2	M, B	M, B	M, B	M, B	M, B
<b>A</b>	3	2	2	3	3	3	E	E	E	E	E
<b>B</b>	4	4	4	4	4	4	H	H	H	H	H
<b>N</b>	5	3	3	5	5	-	C	C	C	C	-
<b>Light reserve warning</b>	-	5	-	-	-	-	G	-	G	-	-
<b>A inv.</b>	-	-	-	-	6	6	-	-	F	F	F
<b>B inv.</b>	-	-	-	-	7	7	-	-	A	A	A
<b>N inv.</b>	-	-	-	-	8	-	-	-	D	D	-
<b>n. c.</b>	-	-	5	6, 7, 8	-	5, 8	A, D, F, J	A, D, F, G, J	J	G, J	D, G, J
<b>Shield</b>	-	-	-	-	-	-	-	-	-	-	-



### Connector (M23) S4, S5, 12-pin



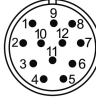
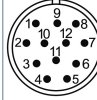
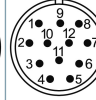
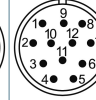
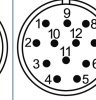
#### Description

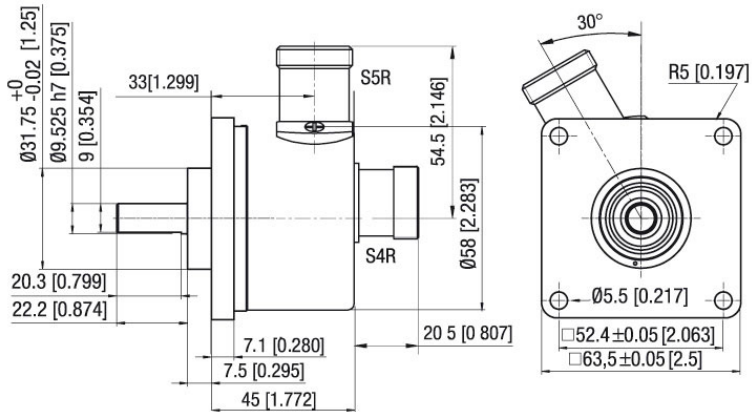
ABN inv. poss.

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

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- 

#### Assignments

	S4, S5	S4, S5	S4, S5	S4, S5	S4, S5
	12-pin	12-pin	12-pin	12-pin	12-pin
					
<b>Circuit</b>	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
<b>GND</b>	10	10	10	10	10
<b>(+) Vcc</b>	12	12	12	12	12
<b>A</b>	5	5	5	5	5
<b>B</b>	8	8	8	8	8
<b>N</b>	3	3	3	3	-
<b>Light reserve warning</b>	11	-	11	-	-
<b>A inv.</b>	-	-	6	6	6
<b>B inv.</b>	-	-	1	1	1
<b>N inv.</b>	-	-	4	4	-
<b>n. c.</b>	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
<b>Shield</b>	-	-	-	-	-

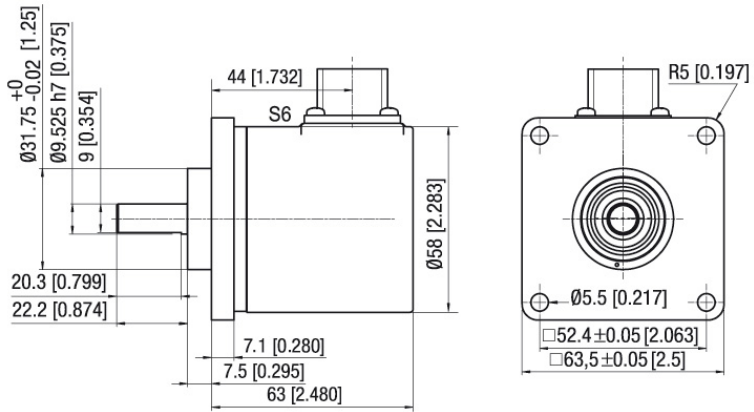
**Connector (M23) S4R, S5R, 12-pin (clockwise)**

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



•

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

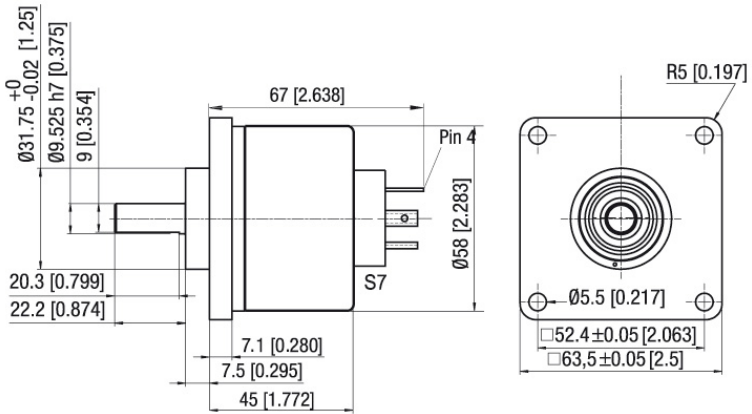
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Assignments					
	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R
	12-pin	12-pin	12-pin	12-pin	12-pin
<b>Circuit</b>	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
<b>GND</b>	10	10	10	10	10
<b>(+) Vcc</b>	12	12	12	12	12
<b>A</b>	5	5	5	5	5
<b>B</b>	8	8	8	8	8
<b>N</b>	3	3	3	3	-
<b>Light reserve warning</b>	11	-	11	-	-
<b>A inv.</b>	-	-	6	6	6
<b>B inv.</b>	-	-	1	1	1
<b>N inv.</b>	-	-	4	4	-
<b>n. c.</b>	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
<b>Shield</b>	-	-	-	-	-

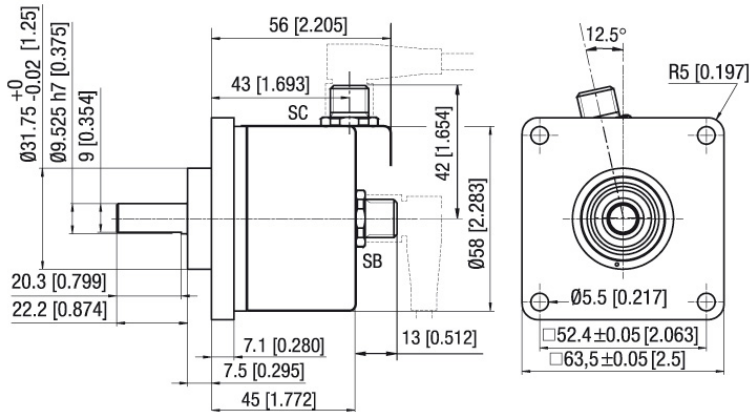
**MIL-connector S6, 6-pin**

**Description**
**ABN inv. poss.**

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












**Valve-connector (IP65) S7, 4-pin**

**Description**
**ABN inv. poss.**

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

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

**Description**
**ABN inv. poss.**

<b>SB4</b>	axial, 4-pin, Connector connected to encoder housing	-
<b>SC4</b>	radial, 4-pin, Connector connected to encoder housing	-
<b>SB5</b>	axial, 5-pin, Connector connected to encoder housing	-
<b>SC5</b>	radial, 5-pin, Connector connected to encoder housing	-
<b>SB8</b>	axial, 8-pin, Connector connected to encoder housing	•
<b>SC8</b>	radial, 8-pin, Connector connected to encoder housing	•
<b>SB12</b>	axial, 12-pin, Connector connected to encoder housing	•
<b>SC12</b>	radial, 12-pin, Connector connected to encoder housing	•

**Assignments**

	<b>SB4, SC4</b>	<b>SB5, SC5</b>	<b>SB8, SC8</b>	<b>SB8, SC8</b>	<b>SB8, SC8</b>	<b>SB12, SC12</b>	<b>SB12, SC12</b>	<b>SB12, SC12</b>	<b>SB12, SC12</b>
	<b>4-pin</b>	<b>5-pin</b>	<b>8-pin</b>	<b>8-pin</b>	<b>8-pin</b>	<b>12-pin</b>	<b>12-pin</b>	<b>12-pin</b>	<b>12-pin</b>
									
<b>Circuit</b>	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
<b>GND</b>	3	3	1	1	1	3	3	3	3
<b>(+) Vcc</b>	1	1	2	2	2	1	1	1	1
<b>A</b>	2	4	3	3	3	4	4	4	4
<b>B</b>	4	2	4	4	5	6	6	6	6
<b>N</b>	-	5	5	5	-	8	8	8	8
<b>Light reserve warning</b>	-	-	-	-	-	5	-	5	-
<b>A inv.</b>	-	-	-	6	4	-	-	9	9
<b>B inv.</b>	-	-	-	7	6	-	-	7	7
<b>N inv.</b>	-	-	-	8	-	-	-	10	10
<b>n. c.</b>	-	-	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
<b>Shield</b>	-	-	-	-	-	-	-	-	-

## Options

### Low temperature

### Order key

The encoder WDG 63Q - 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 63Q - 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](http://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 63Q - Discontinued product can be supplied in a full IP67 version.

**AAO**

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 100 N, 10.197 kp

Permitted Shaft-Loading, radial: 110 N, 11.217 kp

Max. PPR: 2500 ppr

Starting-torque: approx. 4 Ncm at ambient temperature, approx. 5.6645 in-ozf at ambient temperature

Example Order No.	Type				Your encoder
WDG 63Q	WDG 63Q				WDG 63Q
<b>Pulses per revolution PPR:</b>					
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, 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				
<b>Channels:</b>					
ABN	AB, ABN (SIN: AB)				
<b>Output circuit</b>					
G24	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	<b>Light reserve warning</b>	<b>Order key</b>
	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			
K2	Description	ABN inv. poss.	Order key
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>		
	axial, shield not connected	•	K2
	axial, shield connected to encoder housing	•	L2
	radial, shield not connected	•	K3
	radial, shield connected to encoder housing	•	L3
<b>Connector: (shield connected to encoder housing)</b>			
	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	

<b>Example Order No.=</b>	WDG 63Q	5000	ABN	G24	K2		WDG 63Q					<b>Your encoder</b>
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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](http://www.wachendorff-automation.com/distributors_worldwide.html)



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