

Online Data Sheet

Encoder WDG 63Q

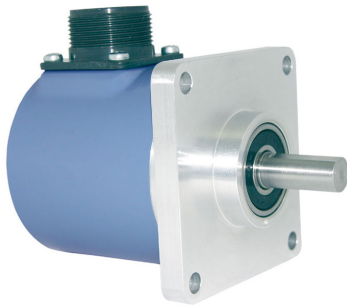
www.wachendorff-automation.com/wdg63q

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



- 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

| 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 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 9.525 mm, Ø 3/8" |
| Shaft length | L: 22.2 mm, L: 0.874" |
| 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 |
| 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 % |

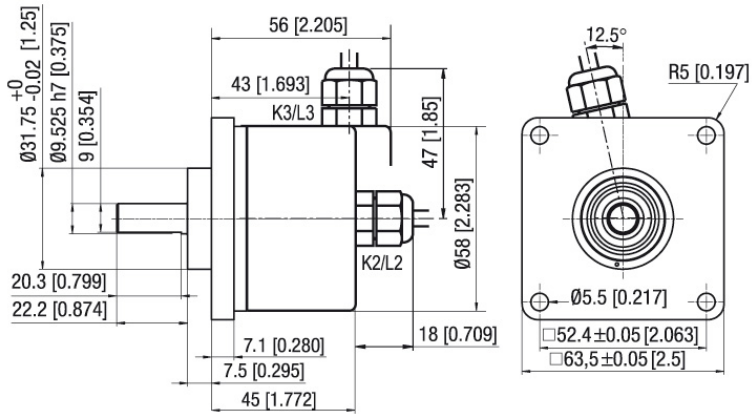
| Electrical Data | |
|----------------------------------|---|
| Power supply/Current consumption | 4,75 VDC up to 5,5 VDC: max. 100 mA 5 VDC up to 30 VDC: max. 70 mA 10 VDC up to 30 VDC: max. 100 mA |

| | |
|--------------------|---|
| 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 5000 ppr: max. 2 MHz HTL more than 5000 ppr: max. 600 kHz 1 Vpp sin/cos: max. 100 kHz |
| Channels | AB ABN and inverted signals 1 Vpp Sin/Cos |
| 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 | 50 % ± max. 7 % |

| General Data | |
|------------------------------|--|
| Weight | approx. 300 g, approx. 9.877 oz |
| Connections | cable or connector outlet |
| Protection rating (EN 60529) | IP67, shaft sealed to IP65 |
| 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 |

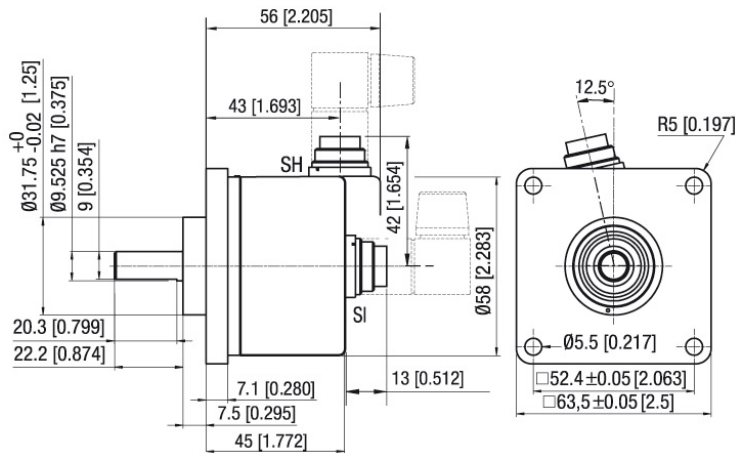
| More Information | |
|------------------------|---|
| General technical data | http://www.wachendorff-automation.com/gtd |
| Options | http://www.wachendorff-automation.com/acc |

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

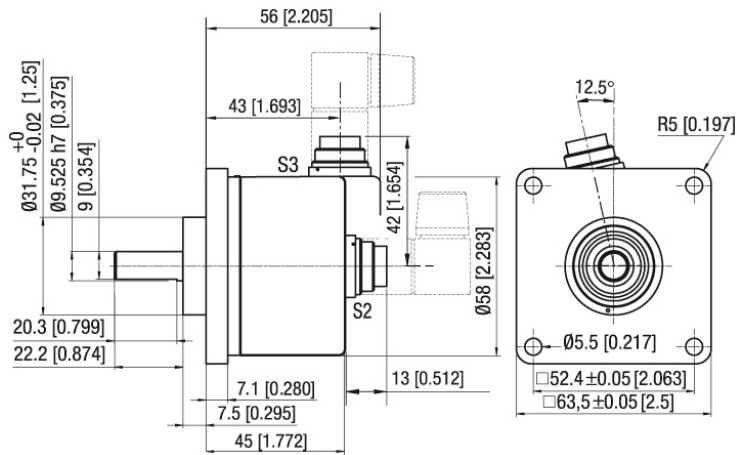
| | K2, K3, L2, L3 | K2, L2, K3, L3 | K2, L2, K3, L3 | K2, L2, K3, L3 | K2, L2, K3, L3 |
|----------------------------------|---------------------------|-------------------------------|---------------------------|--|---------------------------|
| Circuit | G05, G24 | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN |
| GND | WH | WH | WH | WH | WH |
| +UB | 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 | BK | 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

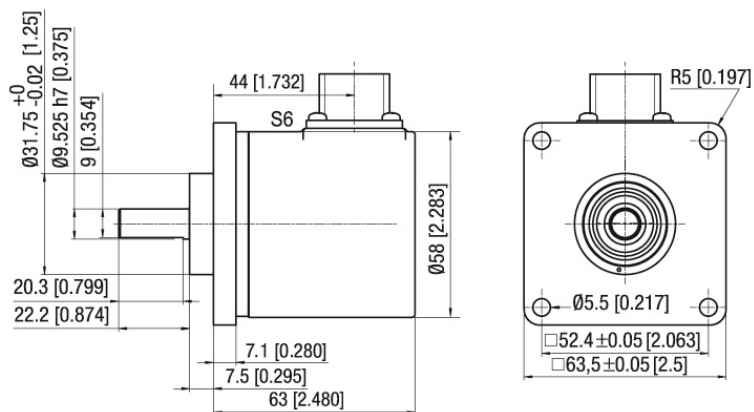
| | SI5, SH5 | SI6, SH6 | SI6, SH6 | SI8, SH8 | SI8, SH8 | SI8, SH8 | SI12, SH12 | SI12, SH12 | SI12, SH12 | SI12, SH12 | SI12, SH12 |
|------------------------------|-------------------------|----------|-------------------------|-------------------------|-----------------------------------|----------|------------|-------------------------|---------------|-----------------------------------|------------|
| | 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 |
| +UB | 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

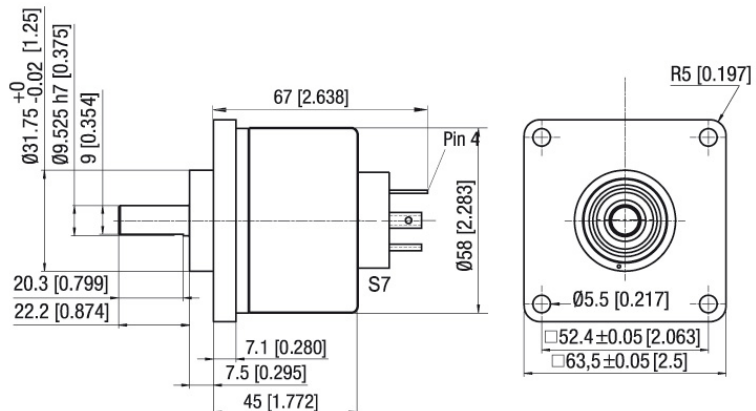
| | S2, S3 7-pin | S2, S3 7-pin |
|------------------------------|---|---|
| |  |  |
| Circuit | G05, G24 | F05, H05, F24, H24, H30 |
| GND | 1 | 1 |
| +UB | 2 | 2 |
| A | 3 | 3 |
| B | 4 | 4 |
| N | 5 | 5 |
| Light reserve warning | 6 | - |
| A inv. | - | - |
| B inv. | - | - |
| N inv. | - | - |
| n. c. | 7 | 6, 7 |
| Shield | - | - |

MIL-connector S6, 6-pin

Description
ABN inv. poss.
S6 radial, 6-pin,

-

| Assignments | | |
|------------------------------|--|--|
| | S6 | S6 |
| | 6-pin | 6-pin |
| |  |  |
| Circuit | G05, G24 | F05, H05, F24, H24, H30 |
| GND | A | A |
| +UB | 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 S7, 4-pin




Description

ABN inv. poss.

S7 axial, 4-pin, Connector connected to encoder housing

-

| Assignments | |
|------------------------------|--|
| | S7 |
| | 4-pin |
| |  |
| Circuit | F05, H05, F24, H24, H30 |
| GND | 1 |
| +UB | 2 |
| A | 3 |
| B | 4 |
| N | - |
| Light reserve warning | - |
| A inv. | - |
| B inv. | - |
| N inv. | - |
| n. c. | - |
| Shield | - |

Options

Low temperature

The encoder WDG 63Q with the output circuit types F24, G24, H24, I24, P24, R24, F05, G05, I05, P05, 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).

Order key

ACA

Cable length

The encoder WDG 63Q 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: 3 m cable = 030

Order key

XXX = Decimeter

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

The encoder WDG 63Q can be supplied in a full IP67 version.

Order key

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 |
| Pulses per revolution PPR I/U (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 |
| | 10000 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 |



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



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