

Encoders WDG



- **Innovative System Solutions**
- **Own Development and Manufacture**
- **3 Years Warranty**
- **Made in Germany**



Rugged & Tough

since 1978



Dipl. Wirtsch. Ing.
Robert Wachendorff

Dear readers,

Welcome to our new catalogue.
What are you expecting?

In this catalogue, you will find the reasons for our success, and the arguments why so many successful companies have been dealing with us for so long.

We are specialists.
Innovation and confidence are our driving force.

On the first few pages, we will demonstrate to you the major advantages of working with us, together with some examples of applications and sector solutions.

Our range of encoders has been extended by new products and additional technical developments.

We cater for a wide range of applications with our intelligent systems.

Our comprehensive range of accessories also helps to solve your tasks.

We look forward to helping to solve your problem, or jointly developing products for integration into your designs.

Give us a call. We look forward to hearing from you.

Yours,
Robert Wachendorff

Your personal contact partners:

Product Manager:



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Would you like a quotation or other information first?



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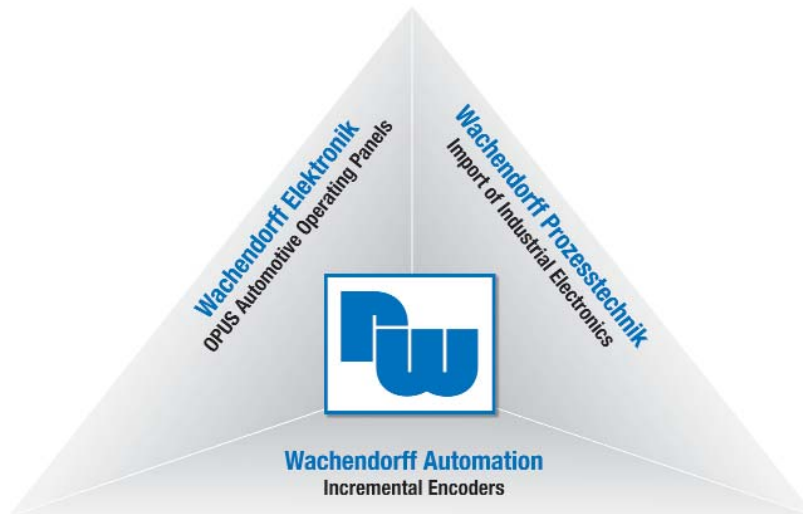
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The Wachendorff Company

We live and work successfully following our guidelines

- We want to fill our customers with enthusiasm
- We supply the best quality – always guaranteed
- We develop products with state-of-the-art technology
- Our employees take responsibility for their actions
- We are growing profitably
- We protect our environment



Wachendorff Elektronik

OPUS Operator Interfaces for mobile machines

In addition to our complete range of standard OPUS products, we would be delighted to design operator interfaces for you, tailored to your particular requirements. Our innovative engineers, with their experience in the areas of hardware, software and mechanics, will find effective answers to your needs. When it comes to the test procedures that accompany the development, then we have at our disposal not only our own in-house test-rigs but also a variety of climatic chambers, a salt-spray station, a rig for checking the degree of environmental protection, various EMC test devices and a vibration shaker. Our flexible manufacturing facilities can produce almost any quantity, and also offer a 48-hour express delivery service. We are certified to DIN/ISO 9001/ 14001.



Wachendorff Prozesstechnik

Import of Industrial Electronics

Wachendorff Prozesstechnik offers sophisticated and high-quality industrial products from all over the world for process visualisation and automation.

Our international suppliers are market leaders in their fields. The essential components of a well-rounded product portfolio are system solutions and responsibility.

In addition to operating units, digital displays and proximity switches, we also supply Ethernet components, signal converters, large displays, temperature regulators and many other products for industry.

Try our free sample service, or call our expert technical application consultants for the solution for your application. The team of Wachendorff Prozesstechnik works in accordance with DIN/ISO 9001/ 14001.



Wachendorff Automation

Incremental Encoders WDG

For more than 15 years, Wachendorff Automation has been developing and manufacturing incremental shaft encoders and hollow shaft encoders for worldwide use. As well as our comprehensive standard range, we would be pleased to design an encoder to your needs. We have many years experience developing encoders for the most varied applications and are well-known amongst our customers for our innovation and our rugged encoders. One of our strengths is the delivery of complete measurement systems. Our flexible manufacturing facilities can produce almost any quantity, and also offer a 48-hour express delivery service. We are certified to DIN/ISO 9001/ DIN/ISO 14001.



- **Incremental encoders for all possible applications**
- **Standard range and special versions**
- **Complete systems**
- **Maximum permissible loads**
- **48-hour express production**
- **Made in Germany**
- **Worldwide sales network**

The optimum combination of electronics, optics and mechanics in the devices make every encoder into one of the most robust and reliable devices on the market. High levels of protection, an extended temperature range and durable electronics enable our products to be used in even the most demanding applications.

In addition to individual devices, we also supply complete systems.

We use individual logistics concepts such as KanBan.

We provide advice and individual solutions.

We will be happy to work out with you the optimum integration of our products into your applications and logistics.



Innovative product development

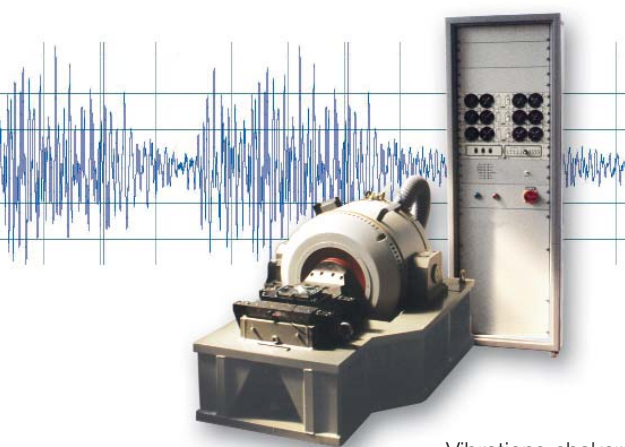
We use the very latest technologies in our product development, working closely with local technical colleges and universities.

But innovation isn't everything.

Thanks to our comprehensive type-approval testing, we guarantee reliability in tough industrial use. Our core expertise is the development and manufacture of encoders and systems for demanding interior or exterior use.



Test stand



Vibrations-shaker

Vibration

One of the most important type tests is for vibration and shock. Using our modern shaker, we test each type of encoder for at least 300 hours for vibration values and 1000 times for the shock values in all axes. The result of this is rugged long-lasting encoders. For each encoder, all the larger component parts as well as the cable connection to the PCB are potted.

Temperature

All the information provided in this catalogue is combined information. We test our encoders so that they continue to comply with all specifications throughout their working life. This means conscientious design and careful selection of components and materials, followed by comprehensive testing in our climatic chambers and other type-approval testing facilities. Our encoders are used in vehicles and aircraft. We also test compliance with MIL specifications.



Climatic chamber



Laboratory

Protection rating

The increasingly sophisticated optics and electronics of our encoders are protected against rough environmental conditions by a sealed housing. Our intensive long-term testing ensures long and reliable use.

Efficient manufacturing “Made in Germany”

- We use the very latest optimisation tools in the production of our encoders.
- We have actively adopted KaiZen as part of our philosophy.
- We put the focus on the customer.
- Our delivery reliability is 98%.
- Our great flexibility ensures a standard delivery time of 10 working days.

Assembly is divided into the following main steps:

- Mechanics
- Optics
- Electronics
- Final testing

All final testing data is automatically measured and recorded. Continual statistical evaluations ensure the required safety.

Our highly trained personnel can assemble an encoder from A to Z.

With our quality certified to DIN ISO 9001 and 14001, we ensure products of a reproducibly high quality.



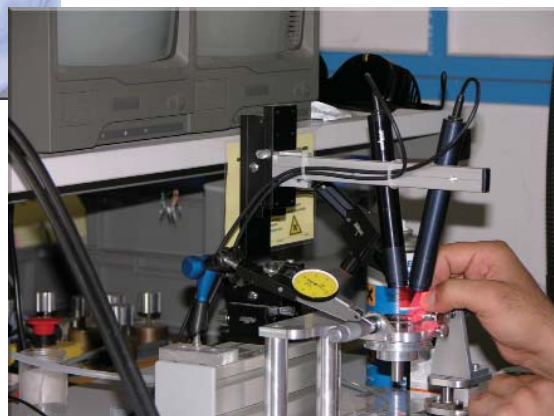
Optimum logistics in final assembly



Documented quality at the automatic final testing point



Concentration on the assembly of the optics



Precision in the assembly of the optics

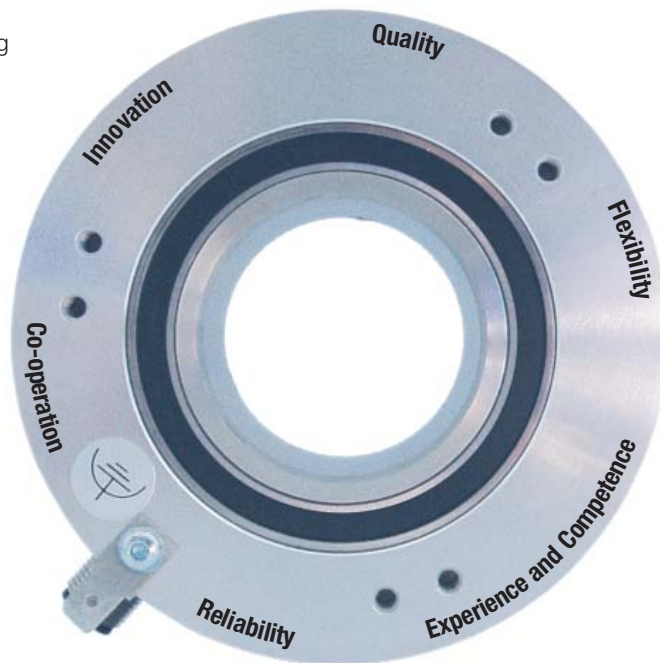
We inspire you!

Innovation

- Successful joint design
- Systematic development
- Key technologies for new developments
- Forward-looking

Quality

- 3-year warranty
- DIN/ISO 9001, DIN/ISO 14001
- UL certification



Flexibility

- Wide range of connectors
- Matching accessories
- Intelligence systems
- Kanban
- Variants for your application

Co-operation

- Intensive partnership
- 48-hour delivery
- Worldwide availability
- Fast repair service

Reliability

- Careful component selection
- Long working life
- Audits of suppliers

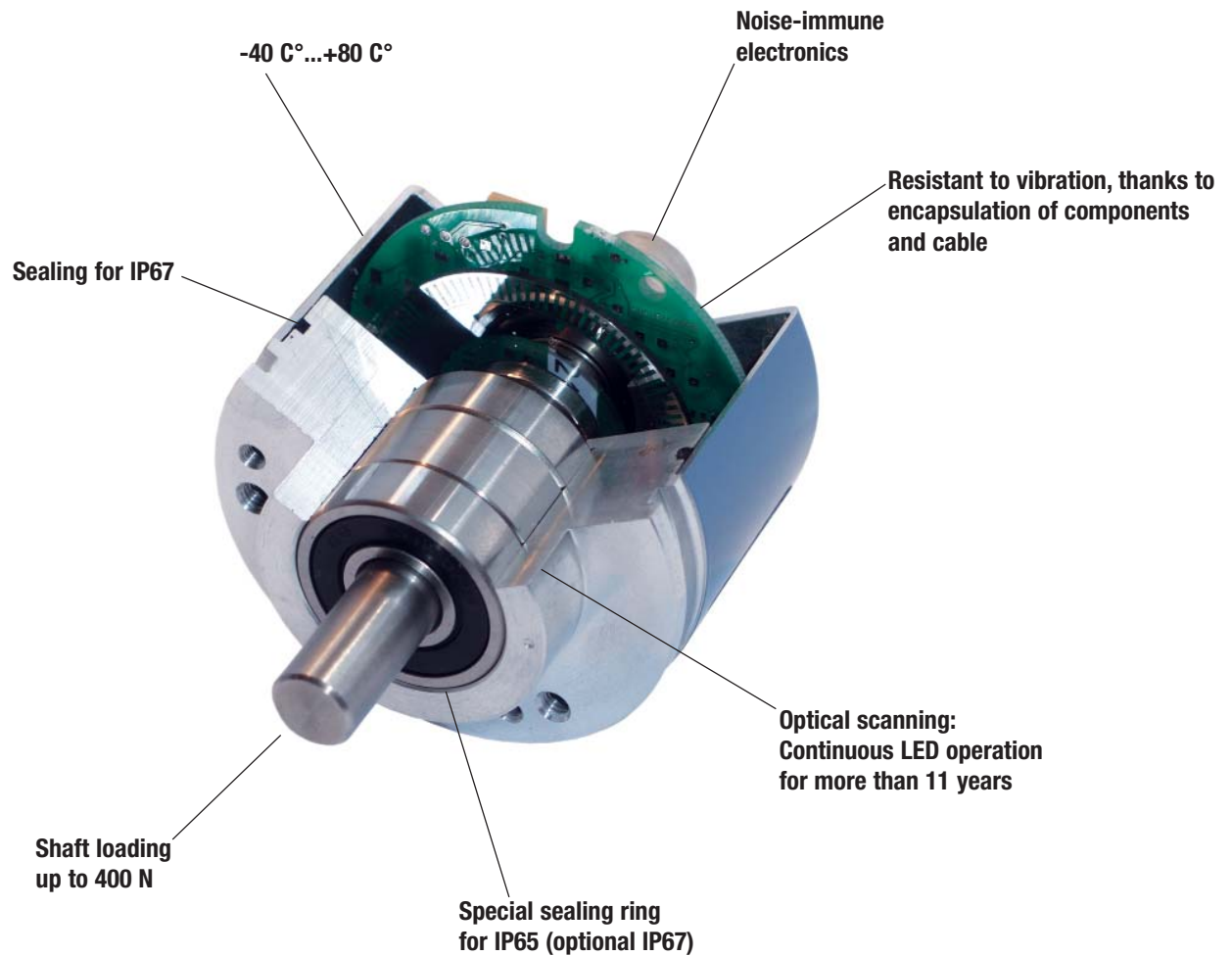
Experience and expertise

- Worldwide applications
- 15 years of development and production
- Practical system solutions

3 years warranty NEW

Reliable quality is one of the most important objectives in the production of our encoders. Because we are so confident in this quality, we have extended our warranty period to 3 years.





Noise immunity

Signal reliability is assured thanks to a design suitable for the toughest EMC conditions.

Top-class Protection

Our encoders have an optimal degree of protection for your application – up to IP69K. Thanks to carefully selected materials and sealing elements, we are able to achieve resistance to salt-water, foodstuffs and oil.

Rugged & Tough

For simulating environmental effects during type and endurance testing, we use our own vibration shaker, our own climatic chambers and a test rig for checking IP protection.

Non-stop operation

Our careful choice of components guarantees a long service life for the WDG encoders, for example our LEDs still shine brightly and reliably after more than 11 years operation.

Very high permissible bearing loads

The optimally designed bearing package ensures very high load capability of the shaft.

Preventative maintenance

At least 1000 hours before the WDG encoder might fail due to LED light performance, an early warning output switches.

Connection safety

All encoders with HTL outputs can be wired in complete safety - it does not matter if the connections are reversed, even on a long-term basis.

High flexibility

Together with you, we will optimise the electrical connection of our encoder WDG to your evaluation electronics.

We can provide different cable lengths or colours, finished cables or any required connector design.



Custom assemblies



Sub-D connectors



mating connectors

Matching accessories

Our coordinated range of accessories gives you the opportunity to get all your needs from one supply source.

We will be happy to advise you in your choice. Here too we specialise in individual solutions.



shaft adapters



couplings



Torque brackets



measuring wheels



Mounting brackets



Spring lever

Joint design

Your success is our objective

In addition to our comprehensive standard range of encoders, systems and accessories, we also design and develop products tailor-made to customer specifications.

Co-operation with our customers has already resulted in many unusual and clever solutions.

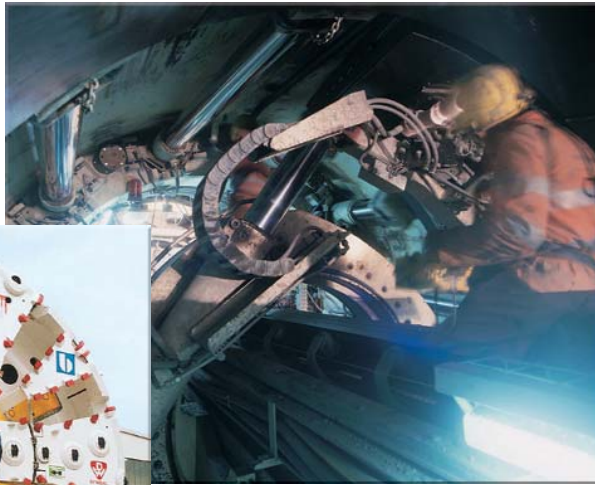
With us, you have an experienced partner at your side, who together with you can develop an innovative product tailored to your requirements.



Selection of sector solutions and application examples



Feed measurement for tunnel drilling machines



Depth measurement for sinking of foundation pillars with a rotary drilling system



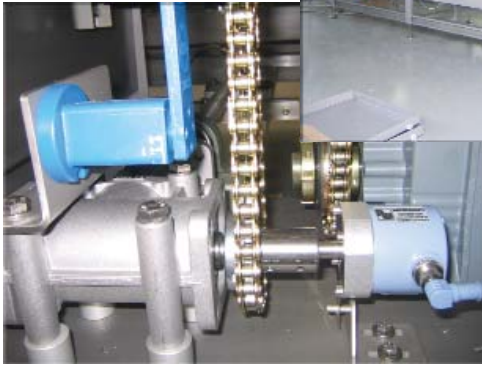
Digital shaft copying in lifts...



Return for frequency-regulated lifts



... and also on drilling platforms



Speed measurement on packaging machines



Speed measurement for quality control of films



Length measurement in chipboard production



Position measurement in bottle inspection



Speed measurement for coding systems



Position measurement for industrial and harbour cranes



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We would like to thank our customers for kindly providing the photographs.

Overview incremental shaft encoders



Type:
Flange:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:

Operating temperature:
Degree of protection:

Catalogue page:



WDG 40A
 Servo flange
 up to 2.500 PPR
 Ø 40, L 41,5 mm
 Ø 6, L 11,5 mm
 12.000 RPM
 max. 80 N radial
 max. 50 N axial
 TTL, HTL, RS422/TTL comp.
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 max. 70 mA
 -20... +80°C
 IP67, shaft sealed to IP65
 Option: all around IP67

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WDG 40S
 Screw flange
 up to 2.500 PPR
 Ø 40, L 33,5 mm
 Ø 6, L 13 mm
 12.000 RPM
 max. 80 N radial
 max. 50 N axial
 TTL, HTL, RS422/TTL comp.
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 max. 70 mA
 -20... +80°C
 IP67, shaft sealed to IP65
 Option: all around IP67

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Suitable for use within the food industry stainless-steel V4A

Type:
Flange:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:

Operating temperature:
Degree of protection:

Catalogue page:

WDG 58V
 Clamping flange
 up to 4.096 PPR
 ø 58, L 42 mm
 ø 10, L 18 mm
 3.600 RPM
 max. 100 N radial
 max. 100 N axial
 TTL, HTL, RS422/TTL comp.
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 5 - 30 VDC
 max. 70 mA
 -20... +80°C
 IP69K

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Available ex-stock

WDG 58T
 Clamping flange
 360, 500, 1024 PPR
 Ø 58, L 42 mm
 Ø 10, L 20 mm
 8.000 RPM
 max. 220 N radial
 max. 120 N axial
 R30 (HTL)
 ABN, ABN inv.
 150 kHz
 5 - 30 VDC
 max. 70 mA
 -10... +70°C
 IP50, shaft sealed to IP54

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WDG 50B

Clamping flange
up to 2.500 PPR
Ø 50, L 44 mm
Ø 8, L 15 mm
12.000 RPM
max. 120 N radial
max. 70 N axial
TTL, HTL, RS422/TTL comp.
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
max. 70 mA
-20... +80°C
IP67, shaft sealed to IP65
Option: all around IP67

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WDG 53S

aluminium

Screw flange
up to 1.500 PPR
Ø 53, L 44 mm
Ø 6, L 13 mm
6.000 RPM
max. 20 N radial
max. 10 N axial
TTL, HTL, RS422/TTL comp.
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
max. 70 mA
-20... +80°C
IP68 all around, with connector,
direct at connector IP67

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WDG 53V

stainless-steel

Screw flange
up to 1.500 PPR
Ø 53, L 44 mm
Ø 6, L 13 mm
6.000 RPM
max. 20 N radial
max. 10 N axial
TTL, HTL, RS422/TTL comp.
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
max. 70 mA
-20... +80°C
IP68 all around

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WDG58V
V4A stainless-steel encoder
Suitable for use within the food & beverage industry
IP69K

Encoder WDG 40A



- Robust and economical encoder with small dimensions
 - Servo flange
 - With control output
 - Protection to IP67, shaft sealed to IP65
- www.wachendorff.de/wdg40a-engl

Application field

Food processing and packaging machines, wood processing machines, testing machines and cleaning installations.

Available PPR up to 2500

Mechanical Data

Housing

- Servo flange: Aluminium
- Housing: Aluminum, powder coated
- Cam mounting: pitch Ø 51 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 80 N radial
max. 50 N axial
- Torque: approx. 0,2 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10 U⁹ revs. at 100% of full rated shaft load
10 U¹⁰ revs. at 40%
10 U¹¹ revs. at 20%

Operating speed: 12.000 rpm

Weight: approx. 100 g

Connections: Shielded cable or connector

Protection rating IP67, shaft sealed to IP65
(EN 60529):

Operating temperature: -20... +80 °C

Storage temperature: -30... +80 °C

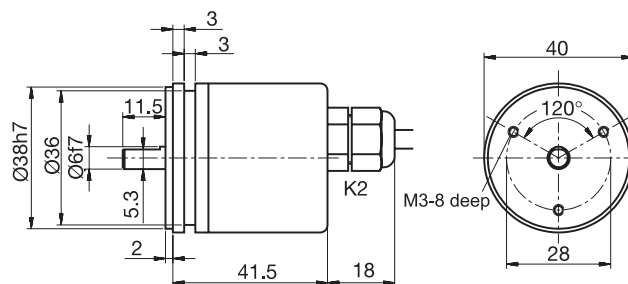
Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05

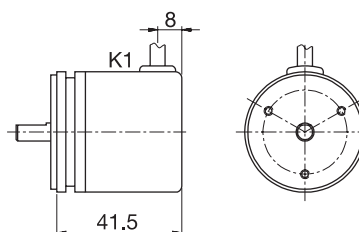
*Only for cable or connector: K2, L2, SB8, SB12

Further information can be found under "General technical data",
Page 122

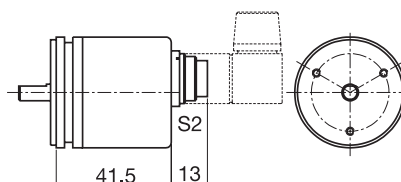
Cable connection K2



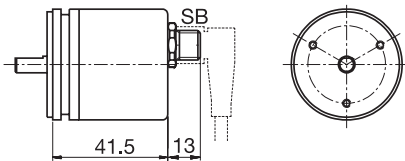
Cable connection K1



Connector S2, 7-pin



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



Options:

Low-friction bearings:

The encoder WDG 40A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to $\leq 0,1$ Ncm and the protection class at the shaft input to IP50. When ordering please add the suffix code - AAC.

Shafts sealed to IP67:

The encoder WDG 40A can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial	radial	Max. PPR	Starting-torque
3.500	30N	45N	1.250	ca. 1,2 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 40A can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL

Output circuit inv.:
I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.

Inverted only for cable or connector:
K2, L2, SB8, SB12

Channels: AB, ABN

Pulses per revolution:
4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500, 1800, 2000, 2048, 2500.

Other PPR's on request

Electrical connections:

Cable:

K1 = radial, 2 m, shield not connected (protection rating IP50)
K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial
SB4 = 4-pin axial
SB5 = 5-pin axial
SB8 = 8-pin axial
SB12 = 12-pin axial

Please note the connection configuration under
"General technical data", Page 122

Options:

Empty =
Low-friction bearings =
Shaft sealed to IP 67 =
Cable length =

without option
AAC
AAO
in decimeters

Order No.:

Example	WDG 40A	500	ABN	G24	K2	
Your encoder	WDG 40A					

Encoder WDG 40S



- Robust and economical encoder with small dimensions
- Screw flange
- With control output
- Easy screw mounting
- Protection to IP67, shaft sealed to IP65

www.wachendorff.de/wdg40s-engl

Application field

Machines used in the wood and plastic industries, car wash systems, food processing machines, elevators, machine construction, doors and gates, wood processing machines, textile machines, motion control.

Available PPR

up to 2500

Mechanical Data

Housing

- Screw flange: Aluminium incl. nut M20 x 1,5
- Housing: Aluminium, powder coated

Shaft

- Material: stainless steel
- Load on shaft end: max. 80 N radial
max. 50 N axial
- Starting torque: approx. 0,2 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed:

12.000 rpm

Weight:

approx. 90 g

Connections:

shielded cable or connector

Starting torque:

max. 10 Nm

Protection rating:

IP67, shaft sealed to IP65

(EN 60529)

Operating temperature:

-20... +80 °C

Storage temperature:

-30... +80 °C

Electrical Data

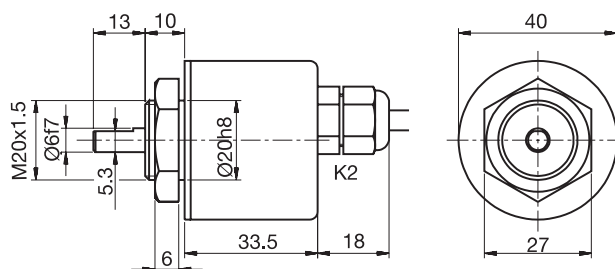
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05

*Only for cable or connector: K2, L2, SB8, SB12

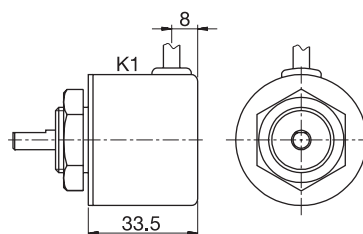
Further information can be found under "General technical data",

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Cable connection K2

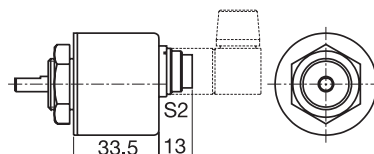


Cable connection K1



K1: radial

Connector S2, 7-pin



Encoder WDG 50B



- Economic encoder with mechanical carrying of loading capacity
 - Clamping flange
 - With control output
 - Protection to IP67, shaft sealed to IP65
- www.wachendorff.de/wdg50b-engl

Application field

Machines used in the wood and plastic industries, food processing machines, motion Control, machines for shoe manufacture and the leather industry.

Available PPR up to 2500

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 61 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 120 N radial
max. 70 N axial
- Starting torque: approx. 0,3 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 2 x 10⁸ revs. at 100% of full rated shaft load
3 x 10⁹ revs. at 40%
2 x 10¹⁰ revs. at 20%

Operating speed: 12.000 rpm

Weight: approx. 160 g

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C

Storage temperature: -30... +80°C

Electrical Data

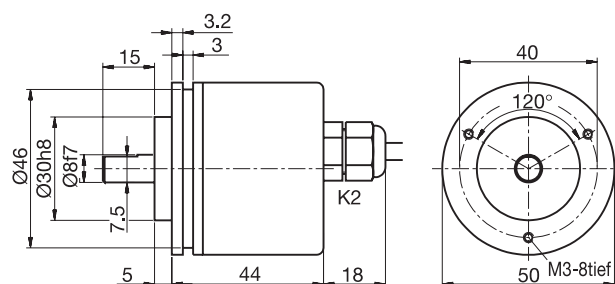
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05

*Only for cable or connector: K2, L2, SB8, SB12

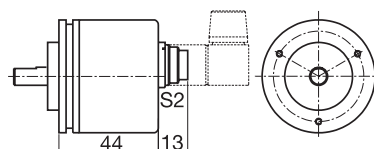
Further information can be found under "General technical data",

Page 122

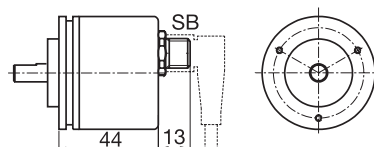
Cable connection K2



Connector S2, 7-pin



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



Options:

Low-friction bearings:

The encoder WDG 50B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to $\leq 0,25$ Ncm and the protection class at the shaft input to IP50. When ordering please add the suffix code - AAC.

Cable length:

The encoder WDG 50B can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122

Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL		Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp.	
Inverted only for cable or connector: K2, L2, SB8, SB12			
Channels: AB, ABN			
Pulses per revolution: 4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500, 2000, 2048, 2500. Other PPR's on request			
Electrical connections: Cable: K2 = axial, 2 m, shield not connected (standard) L2 = axial, 2 m, shield connected to encoder housing Connector: S2 = 7-pin axial SB4 = 4-pin axial SB5 = 5-pin axial SB8 = 8-pin axial SB12 = 12-pin axial Please note the connection configuration under "General technical data", Page 122			
Options: Empty = Low-friction bearings = Cable length =			
without option AAC in decimetres			

Order No.:						
Example	WDG 50B	500	ABN	G24	K2	
Your encoder	WDG 50B					

Encoder WDG 53S

Suitable for use in saltwater



- Extremely rugged and economical encoder with short measurements
 - With control output
 - Easy screw mounting
 - Protection to IP68
- www.wachendorff.de/wdg53s-engl

Application field

Machines for labelling inspection and filling, industrial elevators also for outdoor use, belt scale in a quarry, automatic car wash machines and crane systems.

Available PPR

up to 1500

Mechanical Data

- Screw flange: Aluminium incl. nut M20 x 1,5
 - Housing: Aluminium anodised (blue)
- Shaft
- Material: stainless steel
 - Load on shaft end: max. 20 N radial
max. 10 N axial
 - Starting torque: approx. 1,2 Ncm at ambient temperature

Bearings

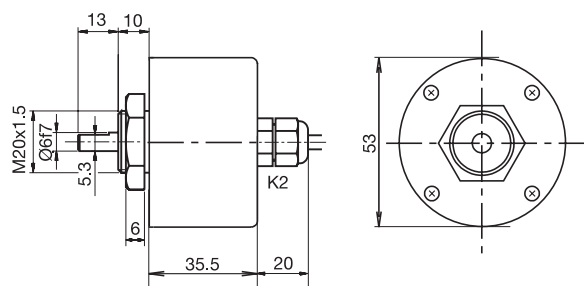
- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 6.000 rpm
Weight: approx. 215 g
Connections: Shielded cable or connector
Starting torque nut: max. 10 Nm

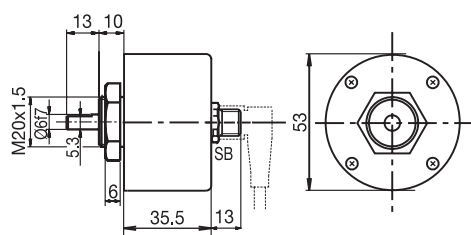
Protection rating: IP68, direct at connector IP67
(EN 60529)

Operating temperature: -20... +80 °C
Storage temperature: -30... +80 °C

Cable connection K2



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



Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05

*Only for cable or connector: K2, L2, SB8, SB12

Further information can be found under "General technical data",
Page 122

Options:

Cable length:

The encoder WDG 53S can be supplied with more than 2 m cable.
Please extend the standard order code with a three figure number,
specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL Inverted only for cable or connector: K2, L2, SB8, SB12		Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp.	
Channels: AB, ABN			
Pulses per revolution: 4, 9, 10, 15, 20, 25, 28, 30, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500. Other PPR's on request			
Electrical connections: Cable: K2 = axial, 2 m, shield not connected (standard) L2 = axial, 2 m, shield connected to encoder housing Connector: SB4 = 4-pin axial SB5 = 5-pin axial SB8 = 8-pin axial SB12 = 12-pin axial Please note the connection configuration under "General technical data", Page 122			
Options: Empty = without option Cable length = in decimetres			

Order No.:						
Example	WDG 53S	500	ABN	G24	K2	
Your encoder	WDG 53S					

Encoder WDG 53V



**Suitable for use within
the food industry**

- Extremely rugged and economical encoder with short measurements
 - Easy screw mounting
 - Protection to IP68
- www.wachendorff.de/wdg53v-engl

Application field

Machines for labelling inspection and filling, industrial elevators also for outdoor use, belt scale in a quarry, automatic car wash machines and crane systems.

Available PPR

up to 1500

Mechanical Data

- Screw flange: stainless steel V4A, incl. nut M20 x 1,5
- Housing: stainless steel V4A, permissible for use with food stuff, grommet, stainless steel V2A

Shaft

- Material: stainless steel V4A
- Load on shaft end: max. 30 N radial
max. 45 N axial
- Starting torque: approx. 1,2 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 6.000 rpm

Weight: approx. 470 g

Connections: cable

Starting torque Nut: max. 10 Nm

Protection rating: IP68
(EN 60529)

Operating temperature: -20... +80 °C

Storage temperature: -30... +80°C

Electrical Data

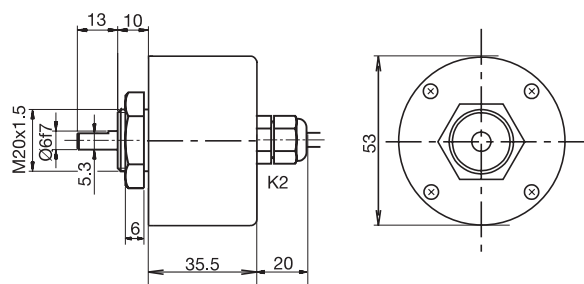
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05

*Only for cable or connector: K2, L2, SB8, SB12

Further information can be found under "General technical data",

Page 122

Cable connection K2



Options:

Cable length:

The encoder WDG 53V can be supplied with more than 2 m cable.
Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122

Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL		Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp.		Electrical connections: Cable: K2 = axial, 2 m, shield not connected (standard) L2 = axial, 2 m, shield connected to encoder housing Please note the connection configuration under "General technical data", Page 122		
Channels: AB, ABN						
Pulses per revolution: 4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500. Other PPR's on request						
Options: Empty = Cable length =		without option in decimetres				

Order No.:						
Example	WDG 53V	500	ABN	G24	K3	
Your encoder	WDG 53V					

Encoder WDG 58V



Especially for food and beverage industry

- EHEDG: Tested hygienic design
- Ecolab: Certificate on resistance to cleaning and disinfection agents
- Clamping flange
- High protection rating IP69K
- Radial shaft sealing ring with no dead-room (PTFE)
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58v-engl

Application field

Food production, food processing machinery, filling, packaging.

Available PPR

up to 4096

Mechanical Data

Housing

- Clamping flange: stainless steel, V4A
- Housing: stainless steel, V4A

Shaft

- Material: stainless steel, V4A
- Load on shaft end: max. 100 N radial
max. 100 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed:

3.600 rpm

Weight:

approx. 600 g

Connections:

cable outlet (TPE)

Protection rating:

IP69K

(EN 60529)

Operating temperature:

-20... +80°C

Storage temperature:

-30... +80°C

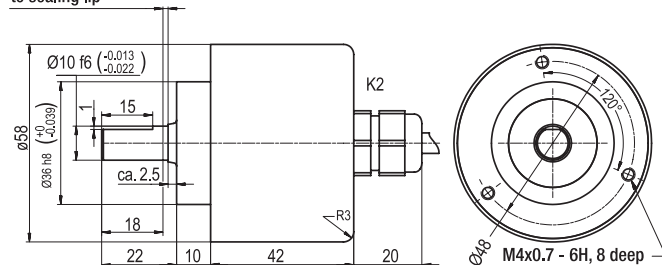
Electrical Data

Power supply	Output circuit	Key	Output circuit	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245

Further information can be found under "General technical data",
Page 122

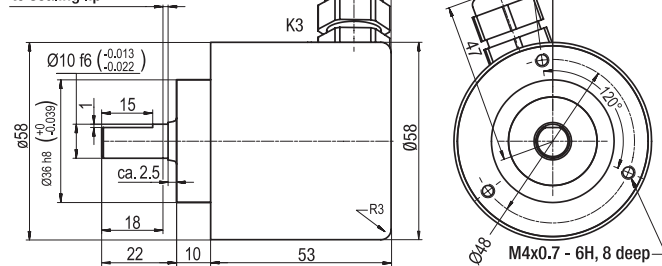
Cable connection K2

Minimum distance of 1.5
to sealing lip



Cable connection K3

Minimum distance of 1.5
to sealing lip



Options:

Low-temperature:

The encoder WDG 58V with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 58V can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL H30 = 5-30 VDC, HTL	Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp. R30 = 5-30 VDC, HTL 245 = 10-30 VDC, RS422 TTL comp.	Electrical connections: Cable: K2 = axial, 2 m, shield not connected (standard) K3 = radial, 2 m, shield not connected (standard) Please note the connection configuration under "General technical data", Page 122
Channels: AB, ABN		Options: Empty = _____ without option Low-temperature -40°C...+80°C = _____ ACA Cable length = _____ in decimetres
Pulses per revolution: 2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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. Other PPR's on request		

Order No.:						
Example	WDG 58V	500	ABN	G24	K3	
Your encoder	WDG 58V					

Encoder WDG 58T

Available ex-stock



- Rugged standard -industrial encoder
 - Protection to IP50, shaft sealed to IP54
 - Highest mechanical and electrical safety
- www.wachendorff.de/wdg58t-engl

Application field

Electric motors, scales, printing machines, drives, textile machines, production lines, test machines, engineering, machine builders.

Available PPR

360, 500, 1024

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on max. 220 N radial
- shaft end: max. 120 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 250 g

Connections: radial cable, 1 m, shield not connected

Protection rating: IP50, shaft sealed to IP54
(EN 60529)

Operating temperature: -10... +70°C

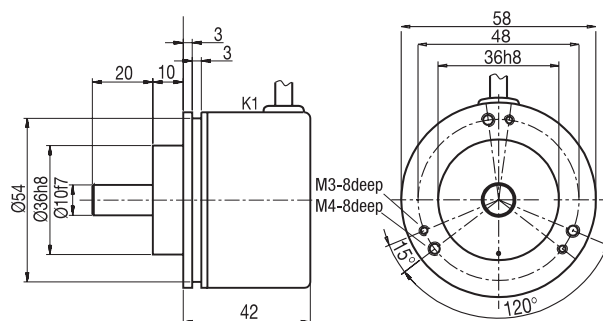
Storage temperature: -30... +80°C

Electrical Data

Power supply	Output circuit	Key
5-30 VDC	HTL, inv.	R30

Further information can be found under "General technical data", Page 122

Cable connection K1



All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Channels: ABN	
Pulses per revolution: 360, 500, 1024	
Order No.:	
Example	WDG 58T 500 ABN R30 K1

Overview incremental or sinus shaft encoders



Type:
Flange:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:

Operating temperature:
Degree of protection:

Catalogue page:



WDG 58A
 Synchro flange
 up to 5.000 PPR
 ø 58, L 42 mm
 ø 6, L 12 mm
 10.000 RPM
 max. 125 N radial
 max. 70 N axial
 TTL, HTL, RS422/TTL comp., 1Vss
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 5 - 30 VDC
 max. 70 mA
 -20... +80°C (1Vss: -10...+70°C)
 IP67, shaft sealed to IP65
 page 34



WDG 58B
 Clamping flange
 up to 5.000 PPR
 Ø 58, L 42 mm
 Ø 10, L 20 mm
 8.000 RPM
 max. 220 N radial
 max. 120 N axial
 TTL, HTL, RS422/TTL comp., 1Vss
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 5 - 30 VDC
 max. 70 mA
 -20... +80°C (1Vss: -10...+70°C)
 IP67, shaft sealed to IP65
 Option: all around IP67
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Type:
Flange:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:
Operating temperature:
Degree of protection:
Catalogue page:

WDG 90B
 Clamping flange
 up to 5.000 PPR
 Ø 90, L 37 mm
 Ø 12, L 26 mm
 8.000 RPM
 max. 200 N radial
 max. 150 N axial
 TTL, HTL, RS422/TTL comp., 1Vss
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 5 - 30 VDC
 max. 70 mA
 -20... +80°C (1Vss: -10...+70°C)
 IP67, shaft sealed to IP65
 Option: all around IP67
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WDG 115T
 Tachoflange
 up to 5.000 PPR
 Ø 115, L 49 mm
 Ø 10, L 25 mm
 8.000 RPM
 max. 200 N radial
 max. 120 N axial
 TTL, HTL, RS422/TTL comp., 1Vss
 ABN, ABN inv.
 200 kHz
 5 VDC
 10 - 30 VDC
 5 - 30 VDC
 max. 70 mA
 -20... +80°C (1Vss: -10...+70°C)
 IP67, shaft sealed to IP65
 Option: all around IP67
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WDG 58C

Synchro flange
up to 5.000 PPR
Ø 58, L 42 mm
Ø 10, L 20 mm

8.000 RPM
max. 200 N radial
max. 120 N axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20... +80°C (1Vss: -10...+70°C)

IP67, shaft sealed to IP65

page 38



WDG 58D

Clamping flange
up to 5.000 PPR
Ø 58, L 42 mm
Ø 12, L 25 mm

8.000 RPM
max. 400 N radial
max. 400 N axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20... +80°C (1Vss: -10...+70°C)

IP67, shaft sealed to IP65

page 40



WDG 58K

Clamping flange
up to 5.000 PPR
Ø 58, L 42 mm
Ø 6, L 20 mm

8.000 RPM
max. 80 N radial
max. 50 N axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20... +80°C (1Vss: -10...+70°C)

IP67, shaft sealed to IP65

Option: all around IP67

page 42



WDG 115M

Tachoflange
up to 5.000 PPR
Ø 115, L 49 mm
Ø 11, L 25 mm

8.000 RPM
max. 200 N radial
max. 120 N axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20... +80°C (1Vss: -10...+70°C)

IP67, shaft sealed to IP65

Option: all around IP67

page 48



WDG 63B

Clamping flange
up to 5.000 PPR
Ø 63,5 mm [2.5"], L 45 mm [1.772"]
Ø 9,525 mm [3/8"], L 22,2 mm [0.874"]

8.000 RPM
max. 200 N, [22,434 kp] radial
max. 120 N [12,237 kp] axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20...+80°C [-4°F...+176°F]
1Vss: -10...+70°C, [14°F...158°F]

IP67, shaft sealed to IP65

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WDG 63Q

Square flange
up to 5.000 PPR
Ø 63,5 mm [2.5"], L 45 mm [1.772"]
Ø 9,525 mm [3/8"], L 22,2 mm [0.874"]

8.000 RPM
max. 200 N, [22,434 kp] radial
max. 120 N [12,237 kp] axial

TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz

5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA

-20...+80°C [-4°F...+176°F]
1Vss: -10...+70°C, [14°F...158°F]

IP67, shaft sealed to IP65

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Encoder WDG 58A



- Synchro flange
- Robust construction for industrial use
- Protection to IP67, shaft sealed to IP65
- High electrical immunity
- Full connection protection with HTL encoders
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58a-engl

Application field

Extension of electric motors, Machine tools, Weighing machines, Transport technology, Printing machines, Motion control, Textile machines, Mounting technology, Diecasting machines, Testing machines, Elevators, Doors and Gates, Industrial robots.

Available PPR up to 5000

Mechanical Data

Housing

- Synchro flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 125 N radial
max. 70 N axial
- Starting torque: approx. 0,5 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 3 x 10⁸ revs. at 100% of full rated shaft load
5 x 10⁹ revs. at 40%
4 x 10¹⁰ revs. at 20%

Operating speed: 10.000 rpm

Weight: approx. 230 g

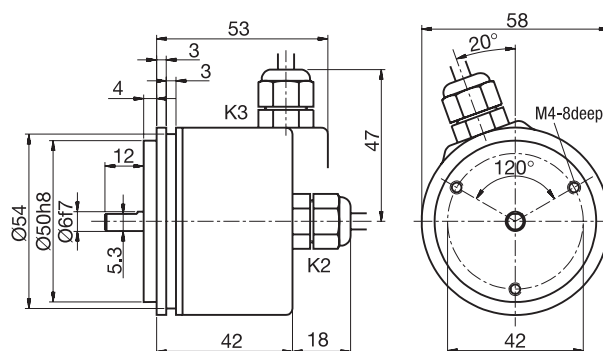
Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

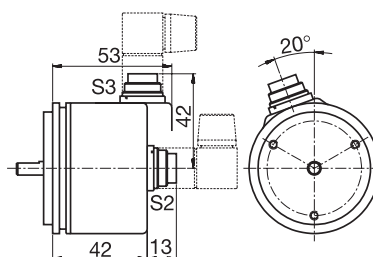
Operating temperature: -20... +80°C, 1Vss: -10... +70°C

Storage temperature: -30... +80°C

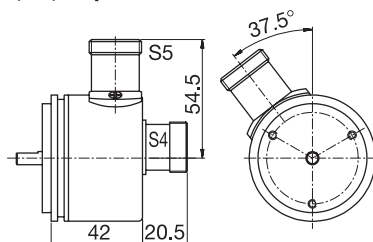
Cable connection K2, K3



Connector S2, S3, 7-pin



Connector S4, S5, 12-pin



Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

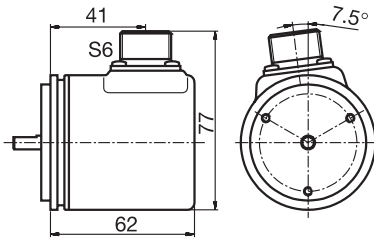
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

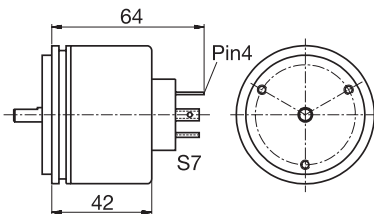
Further information can be found under "General technical data",

Page 122

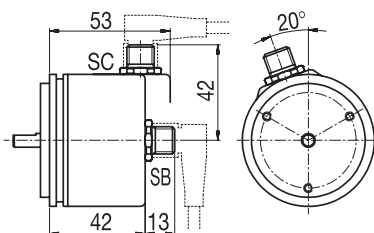
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



All dimensional specifications in mm.
Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:
I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:
K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:
2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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

Other PPR's on request

Options:

Low-temperature:

The encoder WDG 58A with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Low-friction bearings:

The encoder WDG 58A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to $\leq 0,25$ Ncm and the protection class at the shaft input to IP50. When ordering please add the suffix code - AAC.

Cable length:

The encoder WDG 58A can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial
S3 = 7-pin radial
S4 = 12-pin axial
S5 = 12-pin radial
S6 = 6-pin radial
S7 = 4-pin axial

SB4 = 4-pin axial
SC4 = 4-pin radial
SB5 = 5-pin axial
SC5 = 5-pin radial
SB8 = 8-pin axial
SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Low-friction bearings = AAC
Cable length = in decimetres

Order No.:

Example	WDG 58A	500	ABN	G24	K3	
Your encoder	WDG 58A					

Encoder WDG 58B



- Clamping flange
- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58b-engl

Application field

Electric motors, machine tools, weigh scales, conveyors, printing machines, drives, textile machines, production lines, injection-moulding machines, test machines, elevators/lifts, doors and gates.

Available PPR up to 5000

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 220 N radial, max. 120 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load, 10¹⁰ revs. at 40%, 10¹¹ revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 250 g

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C

Storage temperature: -30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

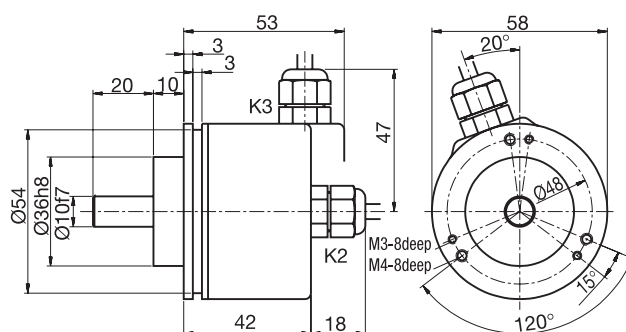
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

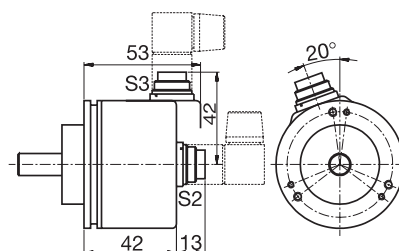
Further information can be found under "General technical data",

Page 122

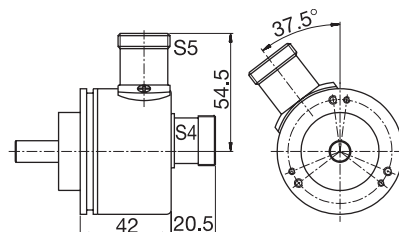
Cable connection



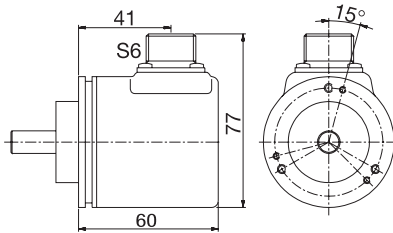
Connector S2, S3, 7-pin



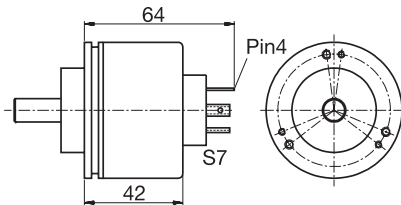
Connector S4, S5, 12-pin



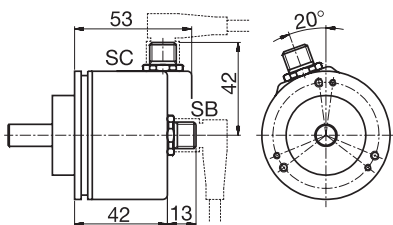
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



All dimensional specifications in mm.
Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:
I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:
K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:
2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Order No.:

Example	WDG 58B	500	ABN	G24	K3	
Your encoder	WDG 58B					

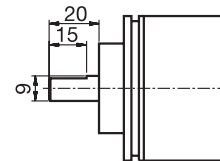
Options:

Low-temperature:

The encoder WDG 58B with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Shaft with flat:

The encoder WDG 58B can be supplied with a shaft with flat. When ordering please add the suffix code - AAF.



Drawing 58B-AAF

Low-friction bearings:

The encoder WDG 58B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to < 0,5 Ncm and the protection class at the shaft input to IP50. When ordering please add the suffix code - AAC.

Shafts sealed to IP67:

The encoder WDG 58B can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial	Max. PPR (no 1Vss)	Starting-torque
3.500	100N 110N	2.500	ca. 4 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 58B can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial
S3 = 7-pin radial
S4 = 12-pin axial
S5 = 12-pin radial
S6 = 6-pin radial
S7 = 4-pin axial

SB4 = 4-pin axial
SC4 = 4-pin radial
SB5 = 5-pin axial
SC5 = 5-pin radial
SB8 = 8-pin axial
SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Shaft with flat = AAF
Low-friction bearings = AAC
Shaft sealed to IP 67 = AAO
Cable length = in decimetres

Encoder WDG 58C



- Synchro flange
- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- High noise immunity
- Full connection protection with 10 - 30 VDC
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58c-engl

Application field

Electric motors, machine tools, weigh scales, conveyors, printing machines, drives, textile machines, production lines, injection-moulding machines, test machines, elevators/lifts, doors and gates.

Available PPR up to 5000

Mechanical Data

Housing

- Synchro flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 200 N radial
max. 120 N axial
- Starting torque: approx. 0,5 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 230 g

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C

Storage temperature: -30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

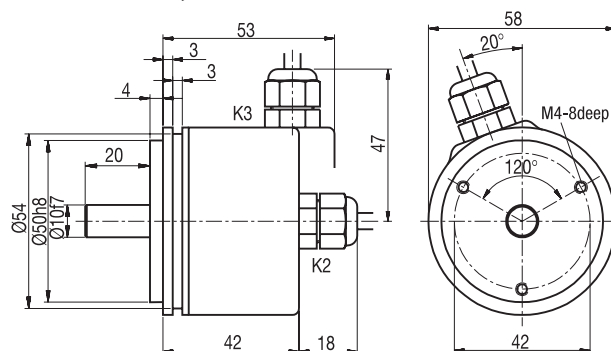
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

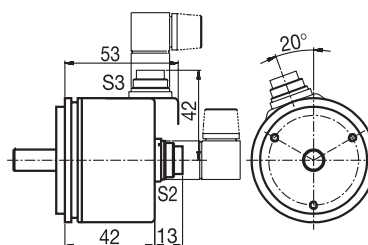
Further information can be found under "General technical data",

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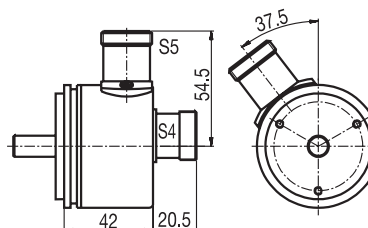
Cable connection K2, K3



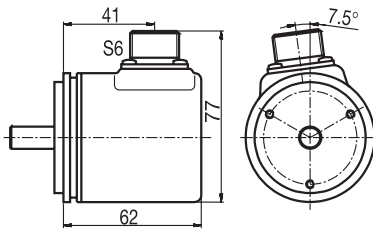
Connector S2, S3, 7-pin



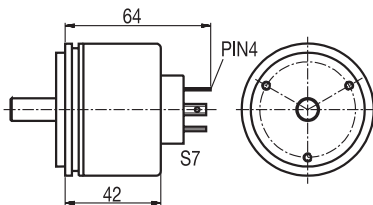
Connector S4, S5, 12-pin



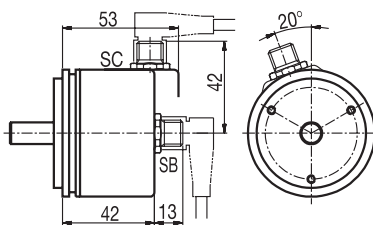
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



Options:

Low-temperature:

The encoder WDG 58C with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 58C can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial	SB4 = 4-pin axial
S3 = 7-pin radial	SC4 = 4-pin radial
S4 = 12-pin axial	SB5 = 5-pin axial
S5 = 12-pin radial	SC5 = 5-pin radial
S6 = 6-pin radial	SB8 = 8-pin axial
S7 = 4-pin axial	SC8 = 8-pin radial
	SB12 = 12-pin axial
	SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty =	without option
Low-temperature -40°C...+80°C =	ACA
Cable length =	in decimetres

Order No.:

Example	WDG 58C	500	ABN	G24	K3	
Your encoder	WDG 58C					

Encoder WDG 58D



- Clamping flange
- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- High noise immunity
- High shaft load radial 400N, axial 400N
- Maximum mechanical and electrical safety
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58d-engl

Application field

Electric motors, machine tools, weigh scales, conveyors, printing machines, drives, textile machines, production lines, injection-moulding machines, test machines, elevators/lifts, doors and gates.

Available PPR up to 5000

Mechanical Data

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 400 N radial
max. 400 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 4 x 10⁸ revs. at 100% of full rated shaft load
6 x 10⁹ revs. at 40%
5 x 10¹⁰ revs. at 20%

Operating speed: 8.000 rpm

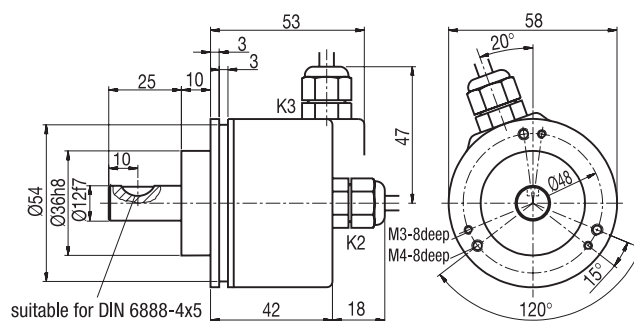
Weight: approx. 250 g

Connections: Shielded cable or connector

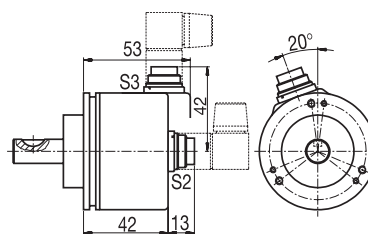
Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C
Storage temperature: -30... +80°C

Cable connection K2, K3



Connector S2, S3, 7-pin



Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

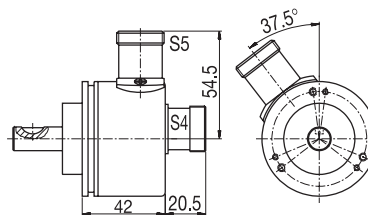
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

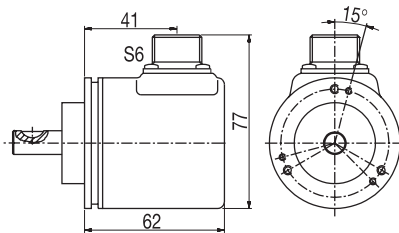
Further information can be found under "General technical data",

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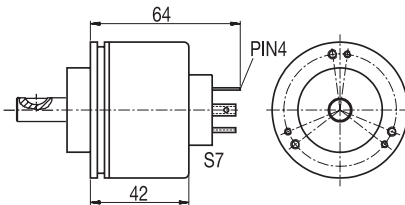
Connector S4, S5, 12-pin



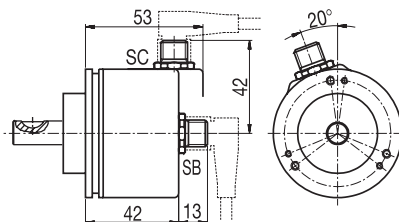
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



All dimensional specifications in mm.
Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:
I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:
K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:
2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Options:

Low-temperature:

The encoder WDG 58D with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 58D can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial	SB4 = 4-pin axial
S3 = 7-pin radial	SC4 = 4-pin radial
S4 = 12-pin axial	SB5 = 5-pin axial
S5 = 12-pin radial	SC5 = 5-pin radial
S6 = 6-pin radial	SB8 = 8-pin axial
S7 = 4-pin axial	SC8 = 8-pin radial
	SB12 = 12-pin axial
	SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty =	without option
Low-temperature -40°C...+80°C =	ACA
Cable length =	in decimetres

Order No.:

Example	WDG 58D	500	ABN	G24	K3	
Your encoder	WDG 58D					

Encoder WDG 58K



- Clamping flange
- Rugged industrial standard encoder
- Protection to IP67, shaft sealed to IP65
- Maximum mechanical and electrical safety
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58k-engl

Application field

Electric motors, machine tools, weigh scales, conveyors, printing machines, drives, textile machines, production lines, injection-moulding machines, test machines, elevators/lifts, doors and gates.

Available PPR up to 5000

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated
- Cam mounting: pitch Ø 69 mm

Shaft

- Material: stainless steel
- Load on shaft end: max. 80 N radial
max. 50 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10¹⁰ revs. at 100% of full rated shaft load
10¹¹ revs. at 40%
10¹² revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 250 g

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C

Storage temperature: -30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

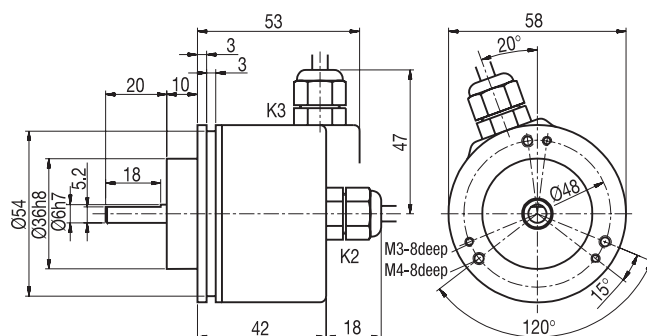
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

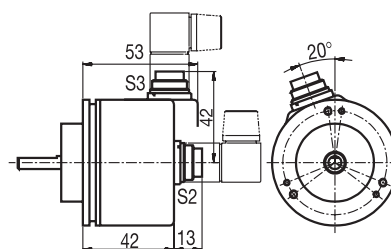
Further information can be found under "General technical data",

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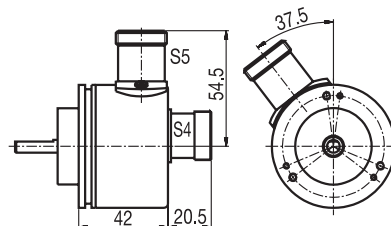
Cable connection K2, K3



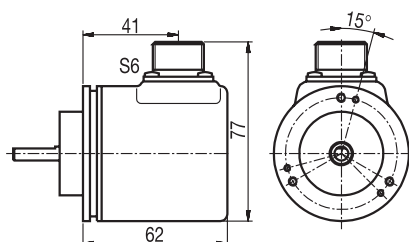
Connector S2, S3, 7-pin



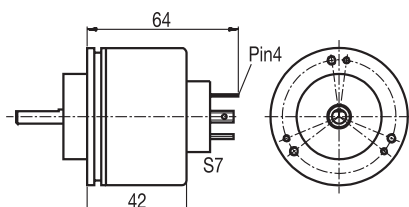
Connector S4, S5, 12-pin



MIL-connector S6, 6-pin

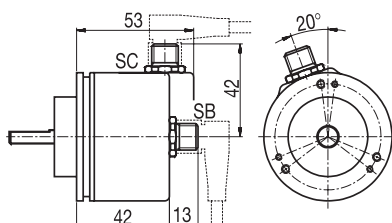


Valve-connector S7, 4-pin



S7: axial

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



Options:

Low-temperature:

The encoder WDG 58K with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Shafts sealed to IP67:

The encoder WDG 58K can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial radial	Max. PPR (no 1Vss)	Starting-torque
8.000	50N 80N	2.500	ca. 4 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 58K can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial SB4 = 4-pin axial
S3 = 7-pin radial SC4 = 4-pin radial
S4 = 12-pin axial SB5 = 5-pin axial
S5 = 12-pin radial SC5 = 5-pin radial
S6 = 6-pin radial SB8 = 8-pin axial
S7 = 4-pin axial SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

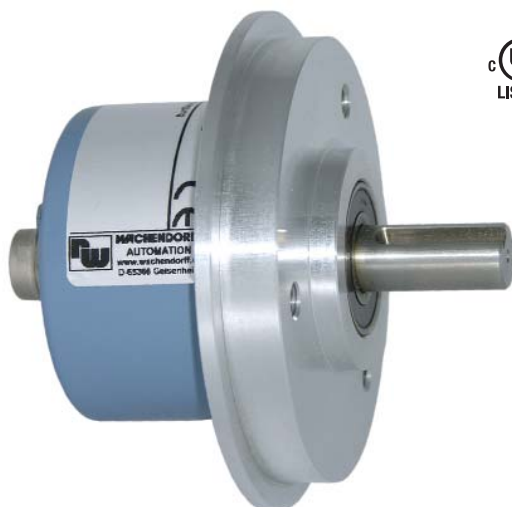
Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Shaft sealed to IP 67 = AAO
Cable length = in decimetres

Order No.:

Example	WDG 58K	500	ABN	G24	K3	
Your encoder	WDG 58K					

Encoder WDG 90B



- Rugged industrial standard encoder
 - Protection to IP67, shaft sealed to IP65
 - Maximum mechanical and electrical safety
 - With control output
 - Optional: -40°C ... +80°C
- www.wachendorff.de/wdg90b-engl

Application field

Electric motors, machine tools, weigh scales, conveyors, printing machines, drives, textile machines, production lines, injection-moulding machines, test machines, elevators/lifts, doors and gates.

Available PPR up to 5000

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated

Shaft

- Material: stainless steel
- Load on shaft end: max. 200 N radial
max. 150 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 380 g

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C
Storage temperature: -30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

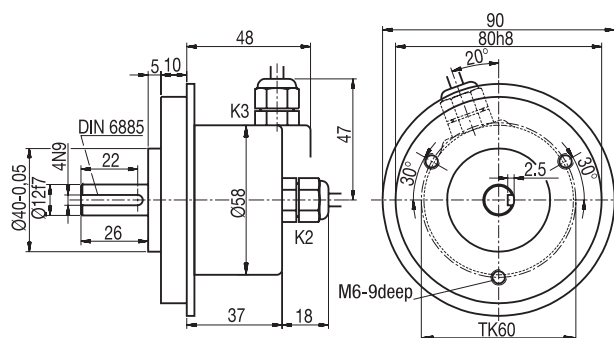
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

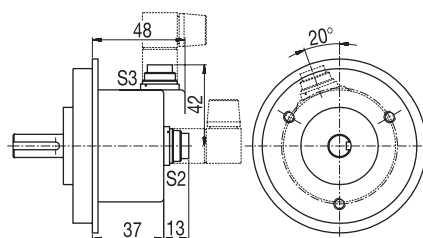
Further information can be found under "General technical data",

Page 122

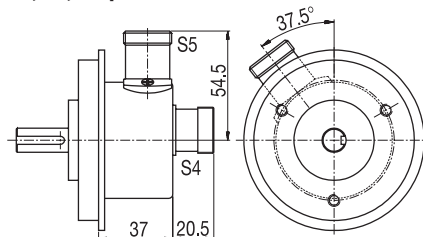
Cable connection K2, K3



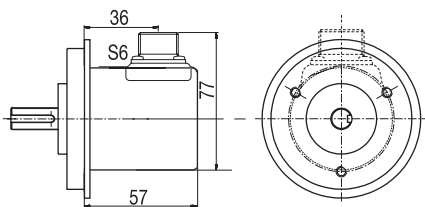
Connector S2, S3, 7-pin



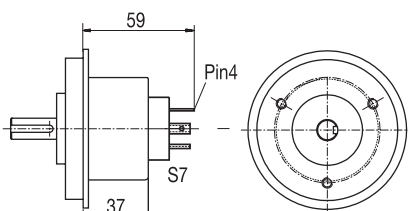
Connector S4, S5, 12-pin



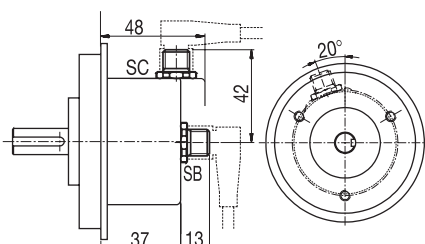
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



Options:

Low-temperature:

The encoder WDG 90B with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Shafts sealed to IP67:

The encoder WDG 90B can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial radial	Max. PPR (no 1Vss)	Starting-torque
3.200	110N 110N	2.500	ca. 5 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 90B can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial SB4 = 4-pin axial
S3 = 7-pin radial SC4 = 4-pin radial
S4 = 12-pin axial SB5 = 5-pin axial
S5 = 12-pin radial SC5 = 5-pin radial
S6 = 6-pin radial SB8 = 8-pin axial
S7 = 4-pin axial SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Shaft sealed to IP 67 = AAO
Cable length = in decimetres

Order No.:

Example	WDG 90B	500	ABN	G24	K3	
Your encoder	WDG 90B					

Encoder WDG 115T



- "Digital Tachogenerator" with robust Standard-flange
- High noise immunity against frequency inverters
- Protection to IP67, shaft sealed to IP65
- 10 mm shaft
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg115T-engl

Application field

Electric motors, elevator construction, conveyor and drive systems.

Available PPR

up to 5000

Mechanical Data

Housing	
- Tachoflange:	Aluminium
- Housing:	Aluminium, powder coated
Shaft	
- Material:	stainless steel
- Load on shaft end:	max. 200 N radial max. 120 N axial
- Starting torque:	approx. 1 Ncm at ambient temperature
Bearings	
- Type:	2 precision ball bearings
- Service life:	10 ⁹ revs. at 100% of full rated shaft load 10 ¹⁰ revs. at 40% 10 ¹¹ revs. at 20%
Operating speed:	8.000 rpm
Weight:	approx. 520 g
Connections:	Shielded cable or connector
Protection rating:	IP67, shaft sealed to IP65 (EN 60529)
Operating temperature:	-20... +80°C, 1Vss: -10... +70°C
Storage temperature:	-30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

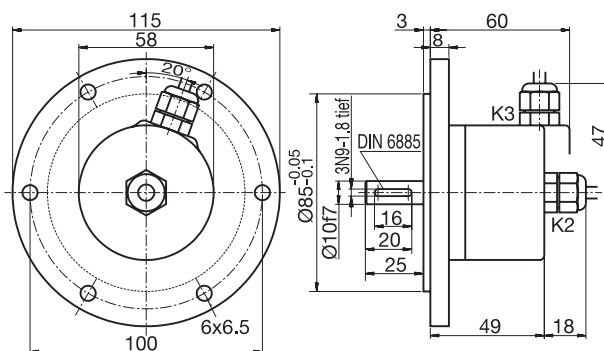
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

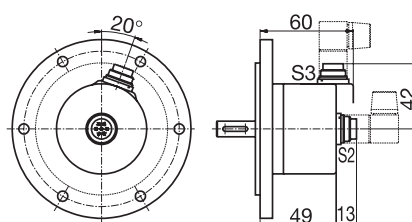
Further information can be found under "General technical data",

Page 122

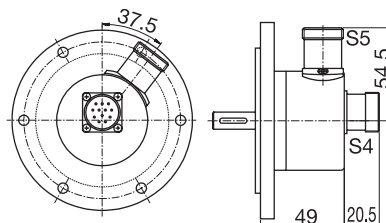
Cable connection K2, K3



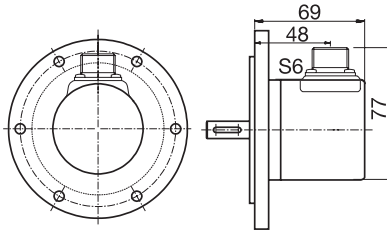
Connector S2, S3, 7-pin



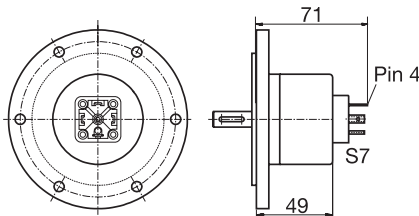
Connector S4, S5, 12-pin



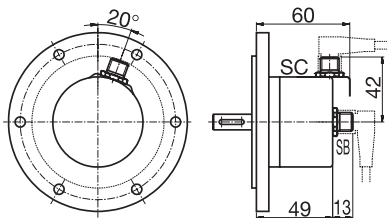
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



Options:

Low-temperature:

The encoder WDG 115T with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Shafts sealed to IP67:

The encoder WDG 115T can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial radial	Max. PPR (no 1Vss)	Starting-torque
8.000	80N 110N	2.500	ca. 4 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 115T can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122

Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial SB4 = 4-pin axial
S3 = 7-pin radial SC4 = 4-pin radial
S4 = 12-pin axial SB5 = 5-pin axial
S5 = 12-pin radial SC5 = 5-pin radial
S6 = 6-pin radial SB8 = 8-pin axial
S7 = 4-pin axial SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Shaft sealed to IP 67 = AAO
Cable length = in decimetres

Order No.:

Example	WDG 115T	500	ABN	G24	K3	
Your encoder	WDG 115T					

Encoder WDG 115M



- “Digital Tachogenerator” with robust tacho flange
 - High noise immunity against frequency inverters
 - Protection to IP67, shaft sealed to IP65
 - 11 mm shaft
 - With control output
 - Optional: -40°C ... +80°C
- www.wachendorff.de/wdg115m-engl

Application field

Electric motors, elevator construction, conveyer and drive systems.

Available PPR

up to 5000

Mechanical Data

Housing

- Tacho flange: Aluminium
- Housing: Aluminium, powder coated

Shaft

- Material: stainless steel
- Load on shaft end: max. 200 N radial
max. 120 N axial
- Starting torque: approx. 1 Ncm at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed:

8.000 rpm

Weight:

approx. 520 g

Connections:

Shielded cable or connector

Protection rating:

IP67, shaft sealed to IP65

(EN 60529)

Operating temperature:

-20... +80°C, 1Vss: -10... +70°C

Storage temperature:

-30... +80°C

Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

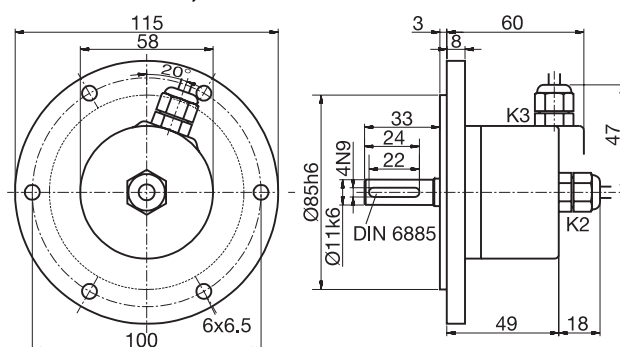
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

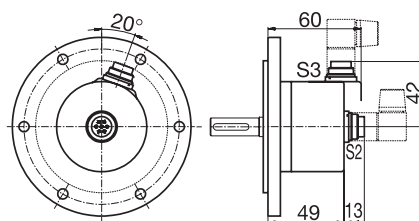
Further information can be found under “General technical data”,

Page 122

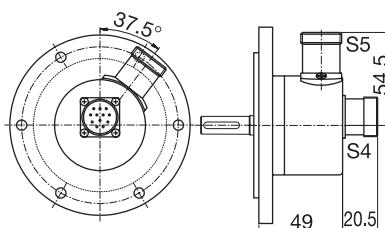
Cable connection K2, K3



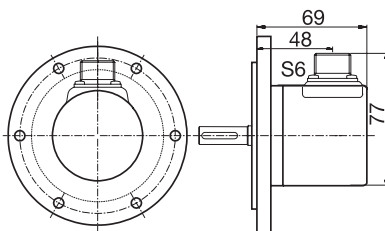
Connector S2, S3, 7-pin



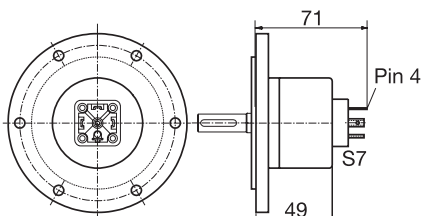
Connector S4, S5, 12-pin



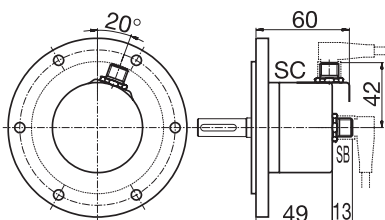
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



Options:

Low-temperature:

The encoder WDG 115M with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Shafts sealed to IP67:

The encoder WDG 115M can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial radial	Max. PPR (no 1Vss)	Starting-torque
8.000	100N 120N	2.500	ca. 5 Ncm

Amended specifications for shaft sealed to IP67.

Cable length:

The encoder WDG 115M can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial SB4 = 4-pin axial
S3 = 7-pin radial SC4 = 4-pin radial
S4 = 12-pin axial SB5 = 5-pin axial
S5 = 12-pin radial SC5 = 5-pin radial
S6 = 6-pin radial SB8 = 8-pin axial
S7 = 4-pin axial SC8 = 8-pin radial
SB12 = 12-pin axial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Shaft sealed to IP 67 = AAO
Cable length = in decimetres

Order No.:

Example	WDG 115M	500	ABN	G24	K3	
Your encoder	WDG 115M					

Encoder WDG 63B



Dimensions inches

- 3/8" stainless steel shaft
 - Dimensions inches
 - Protection to IP67, shaft sealed to IP65
 - With control output
 - Optional: -40°C ... +80°C [-40° F ... +176° F]
- www.wachendorff.de/wdg63b-engl

Application field

Electric motors, crane systems, packaging machines, conveyer and drive systems, assembly equipment, elevators/lifts.

Available PPR

up to 5000

Mechanical Data

Housing

- Clamping flange: Aluminium
- Housing: Aluminium, powder coated

Shaft

- Material: stainless steel
- Load on shaft end: max. 220 N radial [22,434 kp]
- Starting torque: approx. 1 Ncm [1,416 in-oz] at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
- 10¹⁰ revs. at 40%
- 10¹¹ revs. at 20%

Operating speed:

8.000 rpm

Weight:

approx. 280 g [9,877 oz]

Connections:

Shielded cable or connector

Protection rating:

IP67, shaft sealed to IP65

(EN 60529)

Operating temperature:

-20...+80°C [-4°F...+176°F]
1Vss: -10...+70°C, [14°F...158°F]

Storage temperature:

-30...+80°C [-22° F ... +176° F]

Electrical Data

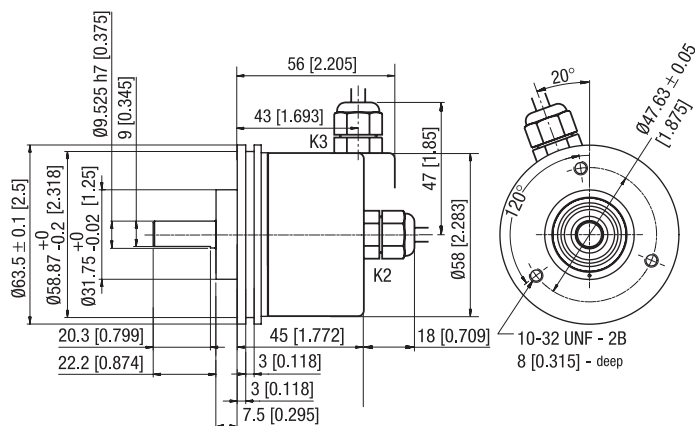
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

*Only for cable or connector:

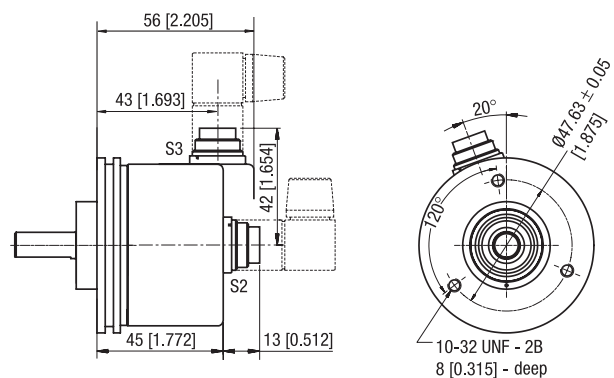
K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Further information can be found under "General technical data", Page 122

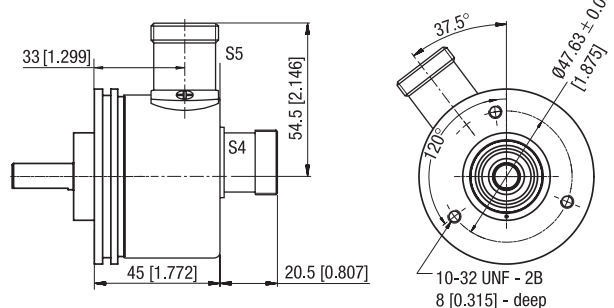
Cable connection K2, K3



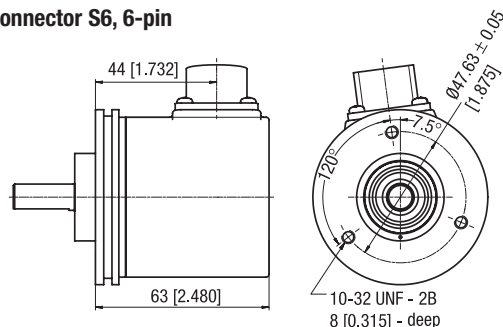
Connector S2, S3, 7-pin



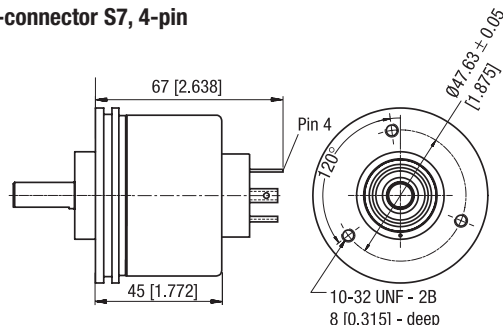
Connector S4, S5, 12-pin



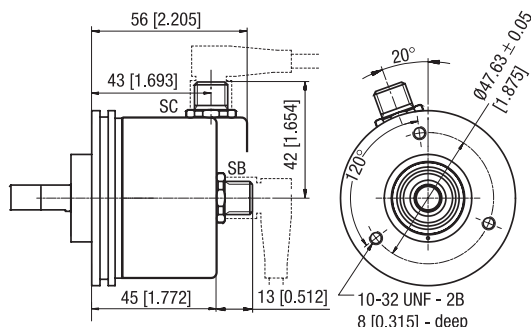
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



All dimensional specifications at technical drawings in mm [inch].

Further technical information is provided on Page 122

Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Options:

Low-temperature:

The encoder WDG 63B with the output switches G24, I24, G05, I05 and 245, is also available with the extended temperature range -40°C...+80°C [-40°F...+176°F] (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 63B can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Electrical connections:

Cable:

K2 = axial, 2m [6.562ft], shield not connected (standard)
L2 = axial, 2m [6.562ft], shield connected to encoder housing
K3 = radial, 2m [6.562ft], shield not connected (standard)
L3 = radial, 2m [6.562ft], shield connected to encoder housing

Connector:

S2 = 7-pin axial	SB4 = 4-pin axial
S3 = 7-pin radial	SC4 = 4-pin radial
S4 = 12-pin axial	SB5 = 5-pin axial
S5 = 12-pin radial	SC5 = 5-pin radial
S6 = 6-pin radial	SB8 = 8-pin axial
S7 = 4-pin axial	SC8 = 8-pin radial
	SB12 = 12-pin axial
	SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty =		without option
Low-temperature	-40°C...+80°C [-40°F ...+176°F]	= ACA
Cable length =		in decimetres

Order No.:

Example

WDG 63B

500

ABN

G24

K3

Your encoder

WDG 63B

Encoder WDG 63Q



Dimensions inches

- Square flange
 - 3/8" stainless steel shaft
 - Dimensions inches
 - Protection to IP67, shaft sealed to IP65
 - With control output
 - Optional: -40°C ... +80°C [-40°F ... +176°F]
- www.wachendorff.de/wdg63q-engl

Application field

Electric motors, crane systems, packaging machines, conveyer and drive systems, assembly equipment, elevators/lifts.

Available PPR up to 5000

Mechanical Data

Housing

- Square flange: Aluminium
- Housing: Aluminium, powder coated

Shaft

- Material: stainless steel
- Load on shaft end: max. 220 N radial [22,434 kp]
max. 120 N axial [12,237 kp]
- Starting torque: approx. 1 Ncm [1,416 in-oz] at ambient temperature

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Operating speed: 8.000 rpm

Weight: approx. 300 g [10.582 oz]

Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65
(EN 60529)

Operating temperature: -20...+80°C [-4°F...+176°F]
1Vss: -10...+70°C, [14°F...158°F]

Storage temperature: -30... +80°C [-22° F ... +176° F]

Electrical Data

Power supply	Output circuit	Key	Output circuit	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

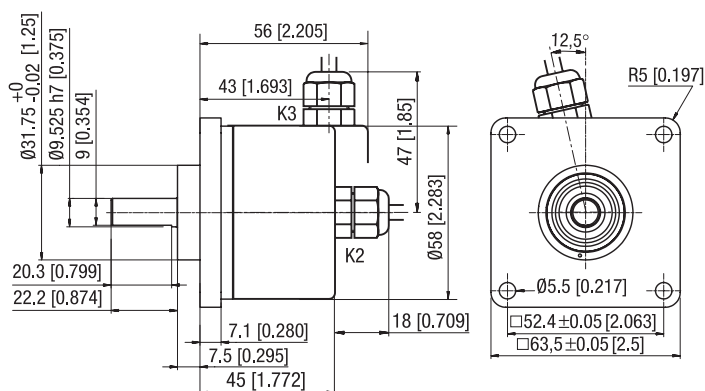
*Only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

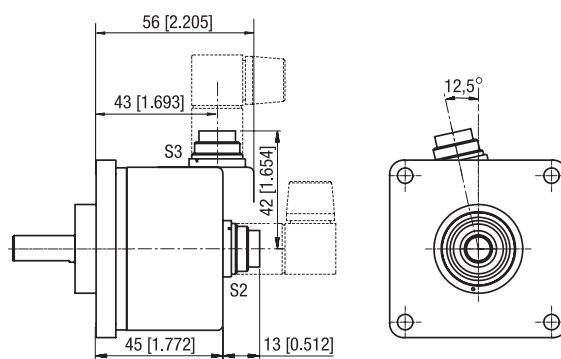
Further information can be found under "General technical data",

Page 122

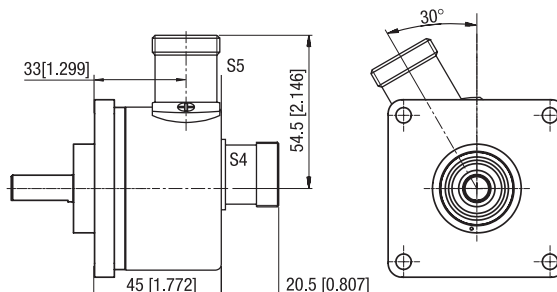
Cable connection K2, K3



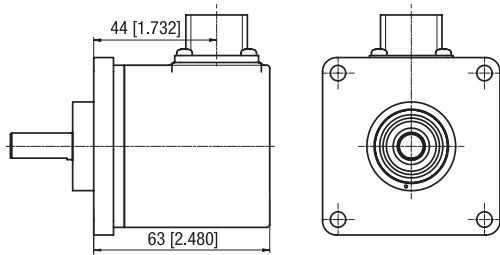
Connector S2, S3, 7-pin



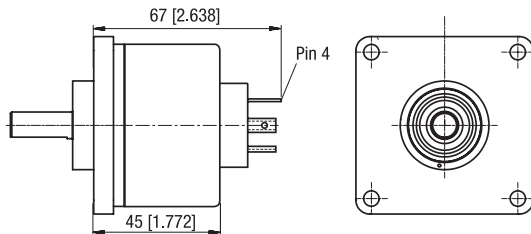
Connector S4, S5, 12-pin



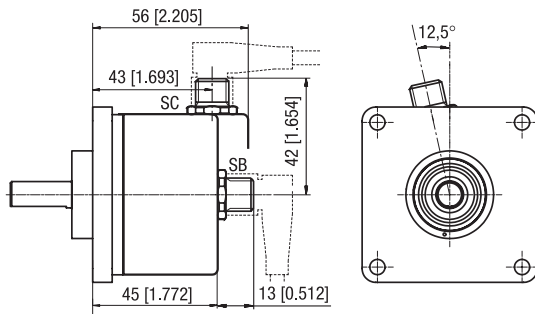
MIL-connector S6, 6-pin



Valve-connector S7, 4-pin



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



Options:

Low-temperature:

The encoder WDG 63Q with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C ... +80°C [-40° F ... +176°F] (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 63B can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:

K2, L2, K3, L3, S4, S5, SB8, SC8, SB12, SC12

Channels: AB, ABN (SIN: AB)

Pulses per revolution:

2, 10, 15, 20, 24, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 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.

Other PPR's on request

Electrical connections:

Cable:

K2 = axial, 2m [6.562ft], shield not connected (standard)
L2 = axial, 2m [6.562ft], shield connected to encoder housing
K3 = radial, 2m [6.562ft], shield not connected (standard)
L3 = radial, 2m [6.562ft], shield connected to encoder housing

Connector:

S2 = 7-pin axial	SB4 = 4-pin axial
S3 = 7-pin radial	SC4 = 4-pin radial
S4 = 12-pin axial	SB5 = 5-pin axial
S5 = 12-pin radial	SC5 = 5-pin radial
S6 = 6-pin radial	SB8 = 8-pin axial
S7 = 4-pin axial	SC8 = 8-pin radial
	SB12 = 12-pin axial
	SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty =		without option
Low-temperature	-40°C...+80°C [-40°F ...+176°F]	= ACA
Cable length =		in decimetres

Order No.:

Example	WDG 63Q	500	ABN	G24	K3	
Your encoder	WDG 63Q					

Overview incremental hollow shaft encoders



WDG 40E

End Hollow Shaft
up to 2.500 PPR
Ø 40, L 32 oder 38 mm
Ø 6 mm

Type:
Housing version:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:
Operating temperature:
Degree of protection:
Catalogue page:

12.000 RPM
max. 80 N radial
max. 60 N axial
TTL, HTL, RS422/TTL comp.
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
max. 70 mA
-20... +80°C
IP67, shaft sealed to IP65
page 56



WDG 145H

Hollow Shaft
up to 2.500 PPR
Ø 145, L 50 mm
Ø 48, 55, 65, 72 mm

1.600 RPM
max. 200 N radial
max. 100 N axial
TTL, HTL, RS422/TTL comp.
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
max. 70 mA
-20... +80°C
IP54
page 58

Encoder WDG 40E



- Robust end hollow shaft encoder with small dimensions
 - With control output
 - Optional: -40°C ... +80°C
- www.wachendorff.de/wdg40e-engl

Application field

Small electric motors, printing machines, drive systems.

Available PPR up to 2500

Mechanical Data

Housing
 - Flange: Aluminium
 - Housing: Aluminium, powder coated
 - Torque Support:
 1. Spring plate Incl. 1 spring plate WDGS10001
 Compensation: axial: max. 1,5 mm
 radial: max. 0,1 mm
 Operating speed 12.000 rpm

Hollow Shaft
 - Material: stainless steel
 - Diameter: 6 mm
 - Load on shaft end: max. 100 N radial
 max. 50 N axial
 - Starting torque: approx. 0,2 Ncm at ambient temperature

Bearings
 - Type: 2 precision ball bearings
 - Service life: 1.4 x 10⁸ revs. at 100% of full rated shaft load
 2 x 10⁹ revs. at 40%
 1.7 x 10¹⁰ revs. at 20%
 Weight: approx. 100 g
 Connections: Shielded cable or connector

Protection rating: IP67, shaft sealed to IP65 (IP40 -> cable K1)
 (EN 60529)

Operating temperature: -20... +80°C
 Storage temperature: -30... +80°C

Electrical Data

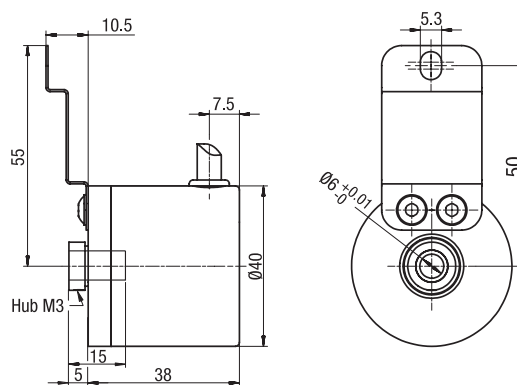
Power supply	Output circuit	Key	Output circuit	Key
10-30 VDC	HTL	G24	HTL, inv.*1	I24
5 VDC	TTL	G05	RS422, TTL comp.*2	I05

*1: Only shielded cable: K1, K2

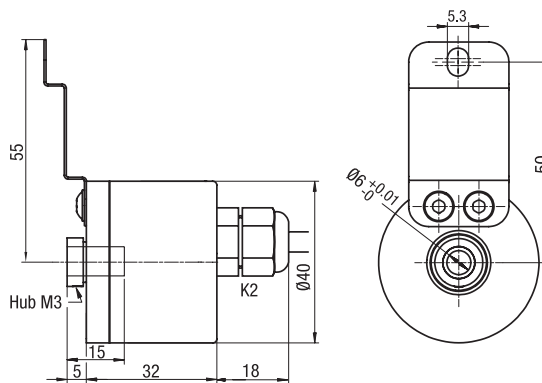
*2: Only shielded cable or connector: K1, K2, SB8, SB12

Further information can be found under "General technical data", Page 122

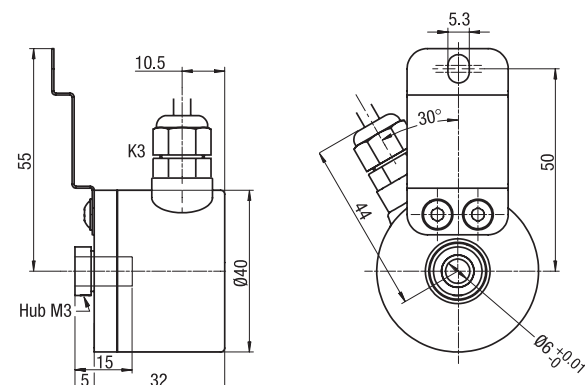
Cable connection K1



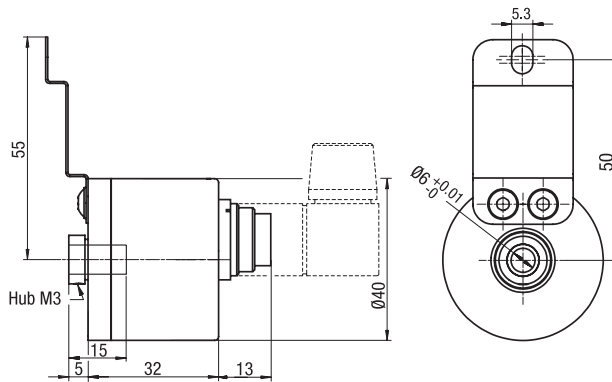
Cable connection K2



Cable connection K3



Connector S2, 7-pin



Options:

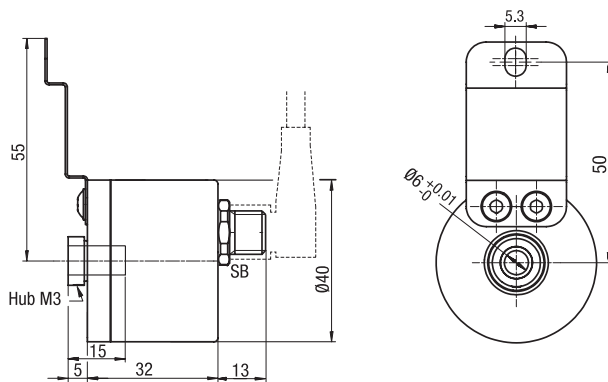
Low-temperature:

The encoder WDG 40E with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 40E can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

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



All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL

Output circuit inv.:
I24*1 = 10-30 VDC, HTL
I05*2 = 5 VDC, RS422 TTL comp.

Inverted only for cable or connector:

*1: Only shielded cable: K1, K2

*2: Only shielded cable or connector: K1, K2, SB8, SB12

Channels: AB, ABN

Pulses per revolution:

4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500, 1800, 2000, 2048, 2500.

Other PPR's on request

Hollow shaft diameter: 6

Electrical connections:

Cable:

K1 = radial, 2 m, shield not connected (protection rating IP40)
K2 = axial, 2 m, shield not connected (standard)
L2 = axial, 2 m, shield connected to encoder housing
K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S2 = 7-pin axial
SB4 = 4-pin axial
SB5 = 5-pin axial
SB8 = 8-pin axial
SB12 = 12-pin axial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Low-temperature -40°C...+80°C = ACA
Cable length = in decimetres

Order No.:

Example	WDG 40E	6	1024	ABN	G24	K1	
Your encoder	WDG 40E						

Encoder WDG 145H



- Hollow shaft encoder for direct installation on large electric motors
- Maximum mechanical and electrical safety
- Highly interference-resistant when used with frequency converters
- Meets protection class IP 54
- With control output
www.wachendorff.de/wdg145h-engl

Application field

Large motors, lift construction, system construction, paper production.

Available PPR up to 2500

Mechanical Data

Housing

- Flange: Aluminium
- Housing: Aluminium
- Torque Support:
 - 1. Spring plate Incl. 3 spring plates WDGDS10001
 - Compensation: axial: max. 2 mm
 - radial: max. 0,15 mm
 - Operating speed: 1.600 rpm
- 2. Cylinder pin (Accessories)
- Compensation: axial: max. 1 mm
- radial: max. 0,3 mm
- Operating speed: 800 rpm

Hollow Shaft

- Material: stainless steel
- Diameter: 48, 55, 65, 72 mm
- Load on shaft end: max. 200 N radial
- Starting torque: max. 100 N axial
- Attachment: approx. 1,5 Ncm at ambient temperature
- permanently attached clamping ring

Bearings

- Type: 2 precision ball bearings
- Service life: 3 x 10¹⁰ revs. at 100% of full rated shaft load
- 4 x 10¹¹ revs. at 40%
- 3 x 10¹² revs. at 20%

Weight: 1.700 - 2.500 g

Connections: Shielded cable or connector

Protection rating: IP54
(EN 60529)

Operating temperature: -20... +80°C

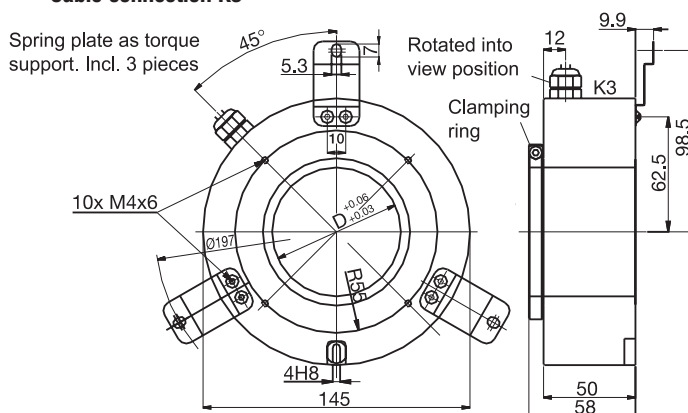
Storage temperature: -30... +80°C

Electrical Data

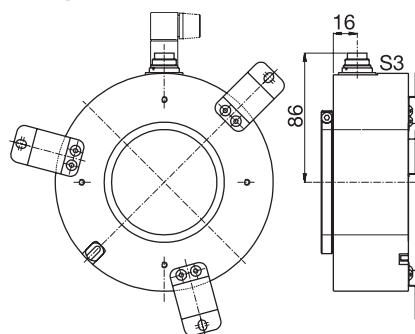
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
10-30 VDC	-	-	RS422, TTL comp.	245

*Only for cable or connector: K2, L2, K3, L3, S4, S5, SC8, SC12
Further information can be found under "General technical data",
Page 122

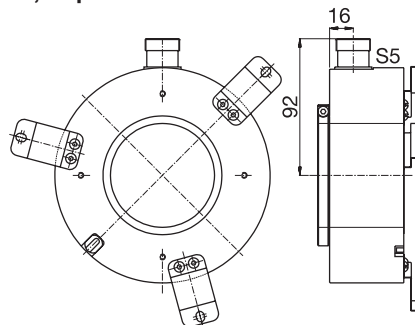
Cable connection K3



Connector S3, 7-pin



Connector S5, 12-pin



Overview incremental or sinus hollow shaft encoders



WDG 58E

End Hollow Shaft
up to 5.000 PPR
Ø 58, L 38 mm
Ø End Hollow Shaft 8, 10, 12 o. 14 mm, H7
6.000 RPM
max. 80 N radial
max. 60 N axial
TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA
-20... +80°C, 1Vss: -10... +70°C
IP67, shaft sealed to IP65



WDG 58H

Hollow Shaft
up to 5.000 PPR
Ø 58, L 38 mm
Ø 8, 10, 12 oder 14 mm, H7
6.000 RPM
max. 80 N radial
max. 60 N axial
TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA
-20... +80°C, 1Vss: -10... +70°C
IP65

Type:
Housing version:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:
Operating temperature:
Degree of protection:
Catalogue page:

page 62

page 64



WDG 80H

Hollow Shaft
up to 2.048 PPR
Ø 80, L 40 mm
Ø 10, 12, 15, 18, 20, 25 mm
3.500 RPM
max. 200 N radial
max. 100 N axial
TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA
-20... +80°C, 1Vss: -10... +70°C
IP65



WDG 100H

Hollow Shaft
up to 4.096 PPR
Ø 100, L 37 mm
Ø 25, 28, 30, 32, 38, 40, 42, 45 mm
3.500 RPM
max. 200 N radial
max. 100 N axial
TTL, HTL, RS422/TTL comp., 1Vss
ABN, ABN inv.
200 kHz
5 VDC
10 - 30 VDC
5 - 30 VDC
max. 70 mA
-20... +80°C, 1Vss: -10... +70°C
IP54

Type:
Housing version:
Resolution:
Housing: Ø, length:
Shaft: Ø, length:
Max. operating speed:
Permitted shaft loading:
Output circuit:
Output channels:
Max. output frequency:
Operating voltage:
Operating temperature:
Degree of protection:
Catalogue page:

page 66

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Encoder WDG 58E



- Rugged industrial standard end hollow shaft encoder
- Maximum mechanical and electrical safety
- High Protection according to IP65, high noise immunity
- End-Hollow-Shaft
- With control output
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg58e-engl

Application field

Motors for all industrial applications.

Available PPR

up to 5000

Mechanical Data

Housing

- Flange: Aluminium
- Housing: Aluminium, powder coated
- Torque Support:

1. Spring plate
Compensation: Incl. 1 spring plate WDGS10001
axial: max. 1,5 mm
radial: max. 0,1 mm
Operating speed: 6.000 rpm
up to max. protection rating +60°C
2. Cylinder pin
Compensation: axial: max. 1 mm
radial: max. 0,3 mm
Operating speed: 3.000 rpm

Hollow Shaft

- Material: stainless steel
- Diameter: 8, 10 oder 12 mm, H7
- Load on shaft end: max. 80 N radial
max. 60 N axial
- Starting torque: approx. 1,6 Ncm at ambient temperature
- Attachment: permanently attached clamping ring

Bearings

- Type: 2 precision ball bearings
- Service life: 10⁹ revs. at 100% of full rated shaft load
10¹⁰ revs. at 40%
10¹¹ revs. at 20%

Weight:

approx. 220 g

Connections:

shielded cable or connector, radial

Protection rating:

IP65

(EN 60529)

Operating temperature:

-20... +80°C, 1Vss: -10... +70°C

Storage temperature:

-30... +80°C

Electrical Data

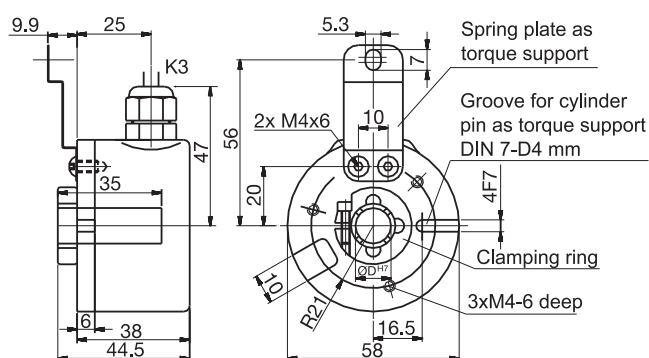
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

*Only for cable or connector: K3, L3, S5, SC8, SC12

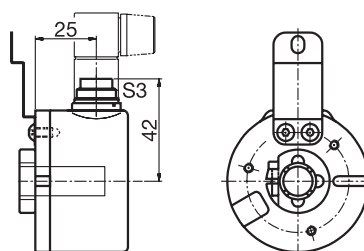
Further information can be found under "General technical data",

Page 122

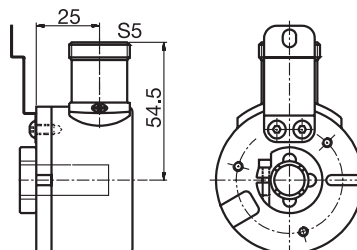
Cable connection K3



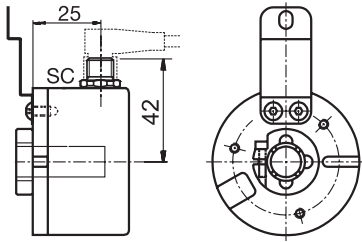
Connector S3, 7-pin



Connector S5, 12-pin



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



Options:

Low-temperature:

The encoder WDG 58E with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 58E can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

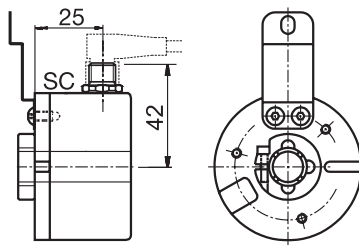
All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL H30 = 5-30 VDC, HTL		Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp. R30 = 5-30 VDC, HTL 245 = 10-30 VDC, RS422 TTL comp. SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)		Electrical connections: Cable: K3 = radial, 2 m, shield not connected (standard) L3 = radial, 2 m, shield connected to encoder housing Connector: S3 = 7-pin radial SC4 = 4-pin radial S5 = 12-pin radial SC5 = 5-pin radial SC8 = 8-pin radial SC12 = 12-pin radial			
Inverted only for cable or connector: K3, L3, S5, SC8, SC12		Please note the connection configuration under "General technical data", Page 122					
Channels: AB, ABN							
Pulses per revolution: 4, 6, 10, 32, 36, 50, 60, 64, 100, 120, 125, 127, 150, 180, 200, 216, 240, 250, 254, 256, 300, 314, 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, 5000. Other PPR's on request							
Hollow shaft diameter: 8, 10, 12 Other diameters on request							
Options: Empty = without option Low-temperature -40°C...+80°C = ACA Cable length = in decimetres							
Order No.:							
Example	WDG 58E	12	1000	ABN	G24	K3	
Your encoder	WDG 58E						

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



Options:

Low-temperature:

Der Encoder WDG 58H with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 58H can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:

G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:

I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 1024 and 2048 PPR)

Inverted only for cable or connector:
K3, L3, S5, SC8, SC12

Channels: AB, ABN

Pulses per revolution:

4, 6, 10, 32, 36, 50, 60, 64, 100, 120, 125, 127, 150, 180, 200, 216, 240, 250, 254, 256, 300, 314, 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, 5000.

Other PPR's on request

Hollow shaft diameter: 8, 10, 12, 14

Other diameters on request

Order No.:

Example	WDG 58H	14	1000	ABN	G24	K3	
Your encoder	WDG 58H						

Electrical connections:

Cable:

K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S3 = 7-pin radial
S5 = 12-pin radial
SC4 = 4-pin radial
SC5 = 5-pin radial
SC8 = 8-pin radial
SC12 = 12-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty =
Low-temperature -40°C...+80°C =
Cable length =

without option
ACA
in decimetres

Encoder WDG 80H



- Rugged and economical encoder
- High protection class IP 65
- Continuous hollow shaft 10 to 25 mm
- With control output
- Easy mounting
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg80h-engl

Application field

Wood- and plastic-machines, paper-machines, mounting technology.

Available PPR

up to 1024

Mechanical Data

- Housing**
- Flange: Aluminium
 - Housing: Aluminium, powder coated
 - Torque Support: Incl. 1 spring plate WDGS10001
 - Compensation: axial: max. 2 mm
radial: max. 0,15 mm
 - Operating speed: 3.500 rpm
- Hollow Shaft**
- Material: stainless steel
 - Diameter: 10, 12, 15, 18, 20, 25 mm
 - Attachment: 2 x M4, DIN 913
 - Starting torque: 2,5 Nm
 - Load on shaft end: max. 200 N radial
max. 100 N axial
 - Starting torque: approx. 6 Ncm at ambient temperature
- Bearings**
- Type: 2 precision ball bearings
 - Service life: 3 x 10¹⁰ revs. at 100% of full rated shaft load
10¹¹ revs. at 40%
10¹² revs. at 20%
- Weight:** approx. 600 g
- Connections:** Shielded cable or connector

Protection rating: IP65
(EN 60529)

Operating temperature: -20... +80°C, 1Vss: -10... +70°C
Storage temperature: -30... +80°C

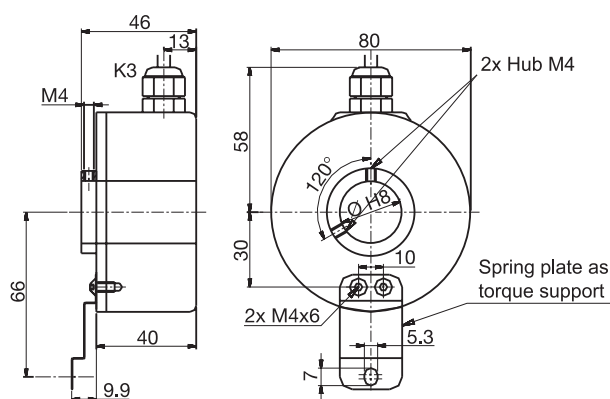
Electrical Data

Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

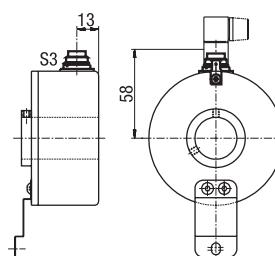
*Only for cable or connector: K3, L3, S5, SC8, SC12

Further information can be found under "General technical data",
Page 122

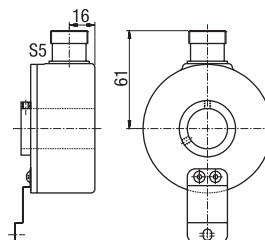
Cable connection K3



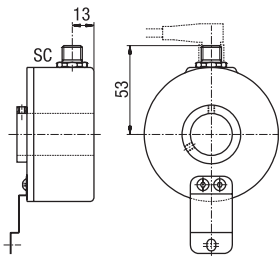
Connector S3, 7-pin



Connector S5, 12-pin



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



Options:

Low-temperature:

The encoder WDG 80H with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 80H can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL H30 = 5-30 VDC, HTL		Output circuit inv.: I24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp. R30 = 5-30 VDC, HTL 245 = 10-30 VDC, RS422 TTL comp. SIN = 5 V, 1 Vss Sinus (only to 1024 PPR)		Electrical connections: Cable: K3 = radial, 2 m, shield not connected (standard) L3 = radial, 2 m, shield connected to encoder housing Connector: S3 = 7-pin radial S5 = 12-pin radial SC4 = 4-pin radial SC5 = 5-pin radial SC8 = 8-pin radial SC12 = 12-pin radial		
Inverted only for cable or connector: K3, L3, S4, S5, SC8, SC12						
Channels: AB, ABN						
Pulses per revolution: 50, 100, 250, 500, 1000, 1024. Other PPR's on request						
Hollow shaft diameter: 10, 12, 15, 18, 20, 25 Other diameters on request						
Options: Empty = without option Low-temperature -40°C...+80°C = ACA Cable length = in decimetres						

Please note the connection configuration under "General technical data", Page 122

Order No.:

Example	WDG 80H	25	1000	ABN	G24	K3	
Your encoder	WDG 80H						

Encoder WDG 100H



- Rugged and extremely thin hollow shaft encoder for extension on power motors
- Continuous hollow shaft, max. 45 mm bore
- With control output
- Easy mounting
- Meets protection class IP 54
- Optional: -40°C ... +80°C

www.wachendorff.de/wdg100h-engl

Application field

Power motors and three phase current motors with frequency transformation, system construction, crane systems.

Available PPR

up to 5000

Mechanical Data

Housing

- Flange: Aluminium
- Housing: Aluminium, powder coated
- Torque Support: Incl. 1 spring plate WDGDS10001
- Spring plate axial: max. 2 mm
- Compensation: radial: max. 0,15 mm

Operating speed:

3.500 rpm

Hollow Shaft

- Material: stainless steel
- Diameter: 25, 28, 30, 32, 38, 40, 42, 45 mm
- Load on shaft end: max. 200 N radial
- Starting torque: max. 100 N axial
- Attachment: approx. 1,5 Ncm at ambient temperature

2 x Hub M4, DIN 913

Bearings

- Type: 2 precision ball bearings
- Service life: 3 x 10¹⁰ revs. at 100% of full rated shaft load
- 10¹¹ revs. at 40%
- 10¹² revs. at 20%

Weight:

approx. 720 g

Connections:

Shielded cable or connector

Protection rating:

IP54

(EN 60529)

Operating temperature:

-20... +80°C, 1Vss: -10... +70°C

Storage temperature:

-30... +80°C

Electrical Data

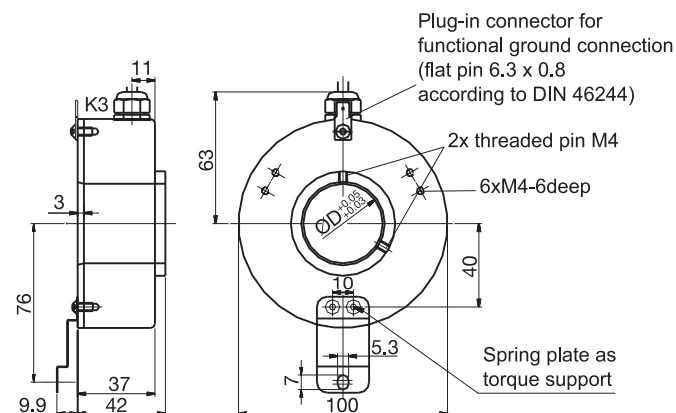
Power supply	Output circuit	Key	Output circuit*	Key
10-30 VDC	HTL	G24	HTL, inv.	I24
5 VDC	TTL	G05	RS422, TTL comp.	I05
5-30 VDC	HTL	H30	HTL, inv.	R30
10-30 VDC	-	-	RS422, TTL comp.	245
5 VDC	-	-	1 Vss Sin./Cos.	SIN

*Only for cable or connector: K3, L3, S5, SC8, SC12, SD15

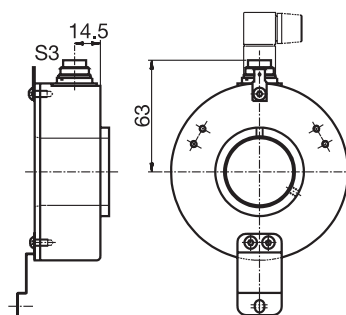
Further information can be found under "General technical data",

Page 122

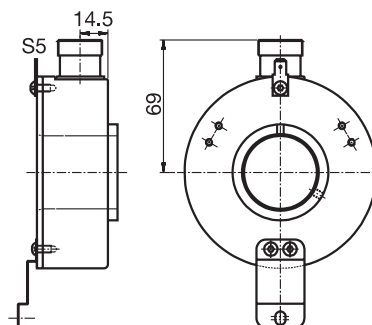
Cable connection K3



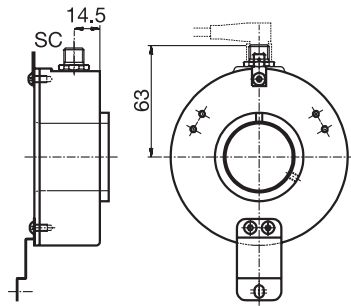
Connector S3, 7-pin



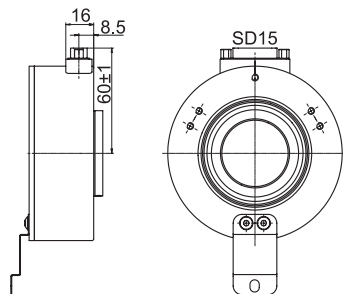
Connector S5, 12-pin



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



Sub-D-connector SD15, 15-pin



Options:

Low-temperature:

The encoder WDG 100H with the output switches G24, I24, G05, I05 and 245 is also available with the extended temperature range -40°C...+80°C (measured at the flange). When ordering please add the suffix code - ACA.

Cable length:

The encoder WDG 100H can be supplied with more than 2 m cable. Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

All dimensional specifications in mm.

Further technical information is provided on Page 122
Matching accessories can be found from Page 100

Ordering information:

Output circuit:
G24 = 10-30 VDC, HTL
G05 = 5 VDC, TTL
H30 = 5-30 VDC, HTL

Output circuit inv.:
I24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.
R30 = 5-30 VDC, HTL
245 = 10-30 VDC, RS422 TTL comp.
SIN = 5 V, 1 Vss Sinus (only to 512, 1024 and 2048 PPR)

Inverted only for cable or connector:
K3, L3, S5, SC8, SC12, SD15

Channels: AB, ABN

Pulses per revolution: 512, 1000, 1024, 2048, 2500, 4096, 4500, 5000.
Other PPR's on request

Hollow shaft diameter: 25, 25.4, 28, 30, 32, 35, 36, 38, 40, 42, 45
Other diameters on request

Electrical connections:

Cable:

K3 = radial, 2 m, shield not connected (standard)
L3 = radial, 2 m, shield connected to encoder housing

Connector:

S3 = 7-pin radial
S5 = 12-pin radial
S6 = 6-pin radial
SC4 = 4-pin radial
SC5 = 5-pin radial
SC8 = 8-pin radial
SC12 = 12-pin radial
SD15 = 15-pin radial

Please note the connection configuration under "General technical data", Page 122

Options:

Empty = without option
Cable length = in decimetres

Order No.:

Example	WDG 100H	30	1000	ABN	G24	K3	
Your encoder	WDG 100H						

Overview absolute encoders



Encoder WDG absolute Profibus-DP

- Interface: Profibus-DP
- Solid/hollow shaft: 6 or 10 mm / 15 mm
- 8,192 steps per revolution (13 bits)
- Max. 4,096 revolutions (12 bits)
- Code: binary
- Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning

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Encoder WDG absolute SSI

- Interface: synchronous serial SSI (RS 422)
- Solid/hollow shaft: 6 or 10 mm / 15 mm
- 8,192 steps per revolution (13 bits)
- Max. 4,096 revolutions (12 bits)
- Preset input (optional)
- Code: Gray, Interface: SSI
- Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning

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Encoder WDG absolute CanOpen

- Interface: LIFT CANOPEN V.01/CAN
- Meets application profile Lift DSP417
- Solid/hollow shaft: 6 or 10 mm / 15 mm
- 8,192 steps per revolution (13 bits)
- Max. 4,096 revolutions (12 bits)
- Code: binary
- Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning

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Encoder WDG absolute Profibus-DP



- Interface: Profibus-DP
 - Solid/hollow shaft: 6 or 10 mm / 15 mm
 - 8,192 steps per revolution (13 bits)
 - Max. 4,096 revolutions (12 bits)
 - Code: binary
 - Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning
- www.wachendorff.de/absoluteliftprofibus-engl

Specifications

Mechanical Data

Housing:	Aluminium
Maximum Shaft loading:	axial 40 N, radial 110 N
Drag torque:	3 Ncm
Speed (continuous operation)	max. 12000 ⁻¹ min Singleturn max. 6000 ⁻¹ min Multiturn
Weight:	Singleturn: approx. 550 g, Multiturn: approx. 600 g

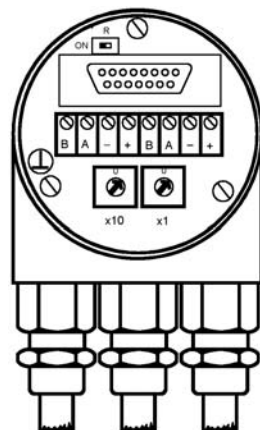
Shaft (mm)

	Synchro(S)	Clamping(C)	Hollow(B)
Shaft ø	6	10	15
Length	10	20	-
Insertion depth min/max.	-	-	15/30
Permissible shaft loading	40N F _a 110N F _r	40N F _a 110N F _r	
Minimum service life in 10 ⁸ revolutions at F _a = 40N			
F _r =	60N	80N	110N
Synchro(S)	822	347	133
Clamping(C)	247	104	40

Environmental Data

Shock resistance: (EN 60068-2-27)	100 g (half-sine, 6 ms)
Permanent shock: (EN 60028-2-29)	10 g (half-sine, 16 ms)
Vibration resistance: (EN 60068-2-6)	10 g (10 Hz ... 2000 Hz)
Operating temperature:	- 40 ... + 85 °C
Storage temperature:	- 40 ... + 85 °C
Relative air humidity:	98 % non-condensing
Protection rating (EN 60529):	IP65, shaft sealed to: IP64

Interface



Electrical Data:

Resolution:	13 bits (25 bits Multiturn)
Baud rate:	max. 12 Mbaud
Data output:	Line-driver to RS 485, galvanically isolated via optocoupler Rotary switches in the field bus hood
Addressing:	Rotary switches in the field bus hood
Step frequency LSB:	800 kHz
Linearity:	±1/2 LSB (12 bit), ± 2 LSB (16 bit)
Power supply:	10-30 V DC (absolute limit values) *
Current consumption:	max. 2,5 W
EMC:	Emitted: EN 61000-6-4 EN 61000-6-2
Immunity:	Service life, electrical:
Service life, electrical:	> 10 ⁵ h
Connection:	Field bus hood
* Supply voltage to EN 50 178 (SELV)	

Interface Profibus-DP

Driver:	to RS 485 standard up to 12 MBit/s
Transmission:	Transmission distances up to 1200 m
Immunity:	high degree of immunity thanks to symmetrical transmission extremely high immunity when using shielded twisted-pair cables
Cables:	direction of rotation (Complement) Resolution per revolution Total resolution Preset value Velocity output Time basis for velocity output Software limit switches
Programmable parameters:	

Installation

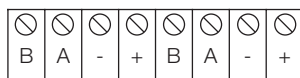
The encoder is connected using either two or three cables, depending on whether the supply voltage is integrated into the bus cable or connected separately. One of the cable glands can be replaced by a blanking connector if required. Each two-core shielded bus cable is fed into or out of the field bus hood via one of the cable glands respectively (these are suitable for cable diameters from 6.5 up to 9 mm).

Setting the Profibus station address is carried out using the two rotary switches in the bus field bus hood. Possible (permitted) addresses are from 1 to 99, whereby each address number may be used only once. The hood can be opened for installation by simply removing the two screws on the encoder.

Resistors are provided in the field bus hood, which can be switched in as required for termination purposes:



Connecting the signal and power supply cables



Terminal	Description
B (left)	Bus line B (Bus in)
A (left)	Bus line A (Bus in)
-	0 V
+	10 - 30 V
B (right)	Bus line B (Bus out)
A (right)	Bus line A (Bus out)
-	0 V
+	10 - 30 V

No.	Red LED	Green LED	Status display / Possible cause
1	OFF	OFF	No supply voltage
2	ON	ON	Encoder is ready for operation but has not received any configuration data after power ON. Possible causes: address set incorrectly. Incorrect bus connection.
3	ON	Flashing	Parameter or configuration error. The encoder is receiving configuration or parameter data with an incorrect length or inconsistent data. Possible cause: e.g. total resolution set too high.
4	Flashing	ON	Encoder is ready for operation but is not being addressed by the Master. (e.g. false address being used).
5	ON	OFF	Encoder has not received any data for a considerable time (approx. 40 seconds) - (e.g. data line interrupted)
6	OFF	ON	Normal operation in Data Exchange mode
7	OFF	Flashing	Start-up mode in Data Exchange mode

The power supply lines have to be connected only once (it does not matter to which of the relevant terminals).

If the terminating resistor is switched on, the outgoing bus lines are disconnected.

The GSD file is required in order to install the encoder; this can be downloaded from our website at www.wachendorff.de/gsd-engl

Diagnostic LEDs are integrated into the rear of the field bus hood. These can be used to show the operating state of the device.

Interface

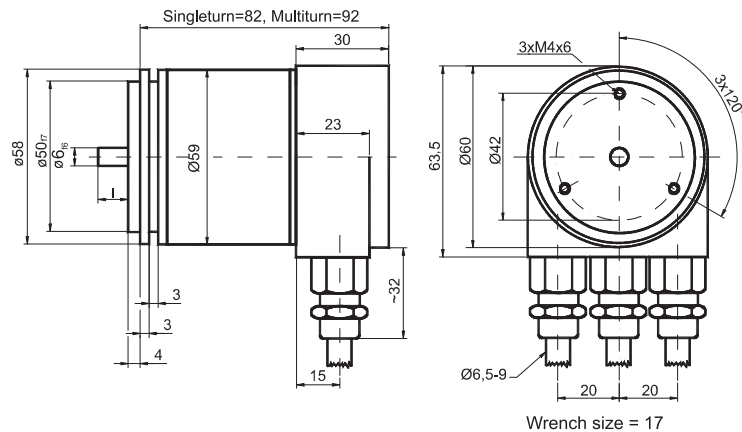
Programmable parameters

The Profibus-DP interface of the absolute encoder supports Class 1 and Class 2 functionality according to the encoder profile*. In addition the GSD files support further features, with which for example the software limit switches can be set. These are some of the encoder parameters that can be programmed:

* The Profibus profile for encoders can be obtained from the: Profibus Nutzerorganisation
Haid-und-Neu-Str. 7,
D-76131 Karlsruhe
using part number 3.062.

Counting direction	The counting direction (Complement) can be assigned as an operating parameter. This parameter defines the counting direction, with which the output code increases or decreases.
Resolution per Revolution	The parameter "Resolution per Revolution" is used to programme the desired number of steps per revolution.
Total Resolution	The parameter "Total Resolution" gives the desired number of steps relating to the total distance traversed. This value should not exceed the total resolution of the absolute encoder - this is given on the type plate.
Preset Value	The Preset Value is the desired position value, which should be reached at a certain physical position of the axis. The position value is set to the desired process value by means of the parameter "Preset Value".
Velocity	The implemented software can additionally supply the current velocity. This value is transmitted in binary code, 16 bits, after the position value. It is possible to choose between four different units: steps per 10 ms, per 100 ms, per 1000 ms and revolutions per minute.
Software Limit Switches Function	Two software limit switches can be set. If the position value either exceeds or falls below these limits, a special bit is set.
Teach-In functionality (Online parameter assignment)	A special mode is available for the commissioning phase of a plant. Here parameters can be changed, whilst the encoder is transmitting data. For continuous operation another mode can be selected, in which the parameters can be protected against unintentional changes.

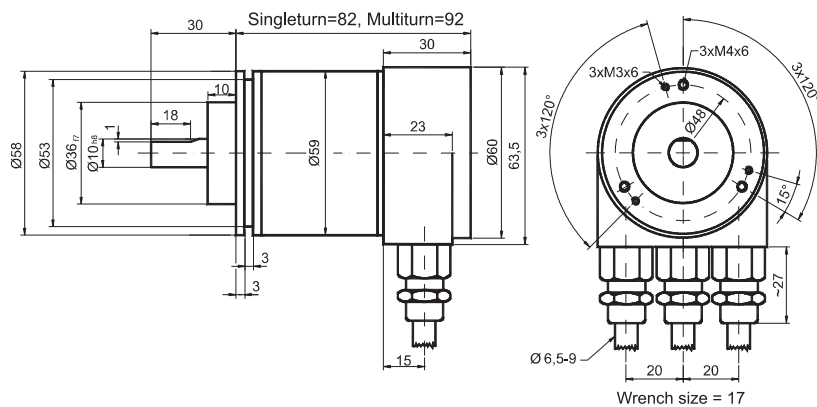
Synchro flange (S)



Synchro flange	d / mm	l / mm
Version S06	6 ₁₆	10

Dimensional drawing WDG absolute Profibus DP, synchro flange.
All dimensional specifications in mm.

Clamping flange (C 10)

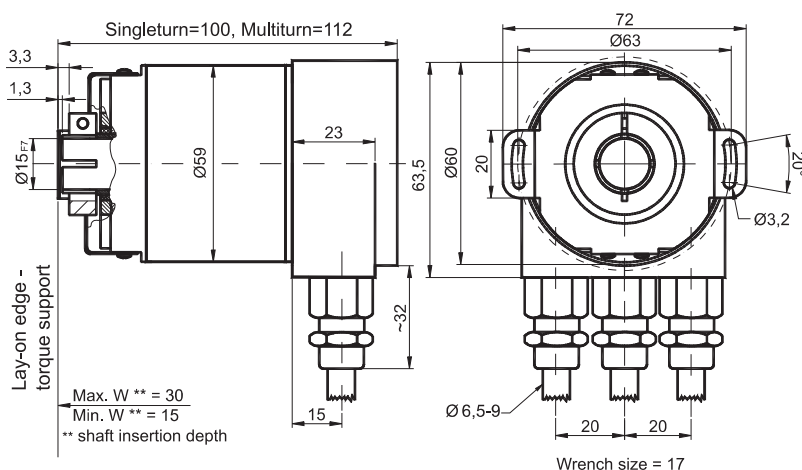


Dimensional drawing WDG absolute Profibus DP, clamping flange.
All dimensional specifications in mm.

Mounting instructions for hollow shaft (B)

The clamping ring must only be tightened on the hollow shaft, if the shaft of the drive element is inserted in the hollow shaft.
The diameter of the hollow shaft can be adapted to suit 12 mm, 10 mm or 8 mm by means of a reducing adapter, (which is simply pushed into the hollow shaft). Thinner shafts are not recommended because of the mechanical loads.

End hollow shaft (B)



Permissible shaft movements of the drive element are listed in the following table:

	Axial	Radial
static	± 0,3 mm	± 0,5 mm
dynamic	± 0,1 mm	± 0,2 mm

Dimensional drawing WDG absolute Profibus DP, end hollow shaft with PAL: axial, PRL: radial.
All dimensional specifications in mm.

Accessories

Description		Order-No.
Clamping claw for S6 and C10	3 pcs. per encoder	SP300
Adapter sleeve for hollow shaft	15 mm -> 12 mm, $\pm 0,3$ mm	RR12
Adapter sleeve for hollow shaft	15 mm -> 10 mm, $\pm 0,3$ mm	RR10
Adapter sleeve for hollow shaft	15 mm -> 8 mm, $\pm 0,3$ mm	RR08

Suitable accessories can be found on our website: www.wachendorff.de/absoluteliftprofibus-engl or request the data sheets on accessories for shaft encoders. Please contact us for further options.

Ordering information

Revolutions [Bit]	Flange	Code	Electrical interface	Option	Electrical connection	Order No.:
0	Clamping flange	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-0013-C100-0CC
12	Clamping flange	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-1213-C100-0CC
0	Synchro flange	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-0013-S060-0CC
12	Synchro flange	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-1213-S060-0CC
0	hollow shaft 15 mm	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-0013-B150-0CC
12	hollow shaft 15 mm	Binary	Profibus DP	None	Field bus hood	WDG-DPB1B-1213-B150-0CC

Encoder WDG absolute SSI



- Interface: synchronous serial SSI (RS 422)
 - Solid-/hollow shaft: 6 or 10 mm / 15 mm
 - 8,192 steps per revolution (13 bits)
 - Max. 4,096 revolutions (12 bits)
 - Preset input (optional)
 - Code: Gray, Interface: SSI
 - Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning
- www.wachendorff.de/absolutessi-engl

Specifications

Mechanical Data

Housing:	Aluminium
Maximum axial loading:	40 N
Shaft-loading:	radial 110 N
Drag torque:	3 Ncm
Speed (continuous operation)	max. 12000 ⁻¹
Weight:	Singleturn: approx. 200 g, Multiturn: approx. 300 g

Shaft (mm)

	Synchro(S)	Clamping(C)	Hollow(B)
Shaft ϕ	6	10	15
Length	10	20	-
Insertion depth min/max.	-	-	15/30
Permissible shaft-loading	40N F_a 110N F_r	40N F_a 110N F_r	

Minimum service life in 10^8 revolutions at $F_a = 40N$

$F_r =$	60N	80N	110N
Synchro(S)	822	347	133
Clamping(C)	247	104	40

Environmental Data

Shock resistance: (EN 60068-2-27)	30 g (half-sine, 11 ms)
Permanent shock: (EN 60028-2-29)	10 g (half-sine, 16 ms)
Vibration resistance: (EN 60068-2-6)	10 g (10 Hz ... 2000 Hz)
Operating temperature:	- 40 ... + 85 °C *
Storage temperature:	- 40 ... + 85 °C *
* cable connection:	- 30... +70°C (fixed layed) - 5... +70°C (flexible layed)
Relative air humidity:	98 % non-condensing
Protection rating (EN 60529):	IP65, shaft sealed to: IP64

Electrical Data:

Resolution:	13 Bit (25 Bit Multiturn)
Clock input:	via optocoupler
Data output:	Line-Driver to RS 422
Clock frequency:	100kHz - 2 MHz
Step frequency LSB:	800 kHz
Linearity:	$\pm 1/2$ LSB (12 bit), ± 2 LSB (16 bit)
Cycle time:	< 150 μ s
Turn-on time:	< 1 s
Supply voltage:	10-30 V DC (absolute limit values) *
Power input:	Version SL max. 1 W, Version S1 max. 1 W, Vers. S2 max. 1,5 W, Vers. S3 max. 1,5 W
EMC:	Emitted: EN 61000-6-4
Immunity:	EN 61000-6-2
Service life electrical:	> 10^5 h
* Supply voltage to EN 50 178 (SELV)	

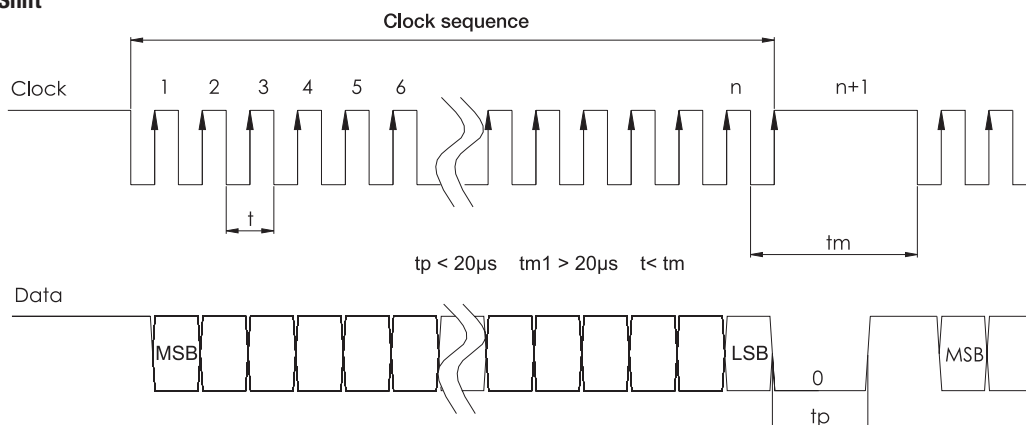
Interface Synchronous Serial Interface (SSI)

Driver:	to RS 422 - standard up to 10 MBit/s
Transmission:	Transmission distances up to 1200 m
Immunity:	high degree of immunity thanks to symmetrical transmission
Cables:	extremely high immunity when using shielded twisted-pair cables

Preset function

(only Version S1)
Preset value = 0 is set with the falling edge after 100 ms.
The function should only be used when the shaft is at a standstill.

Single Shift



COMPLEMENT-Input		Angle encoder count direction, rotating clockwise (view from shaft end)
Function	Signal level	
Direction of rotation	0 (input open* or to GND) 1 (input to + U _b or 4,5 V)	
		adding subtracting

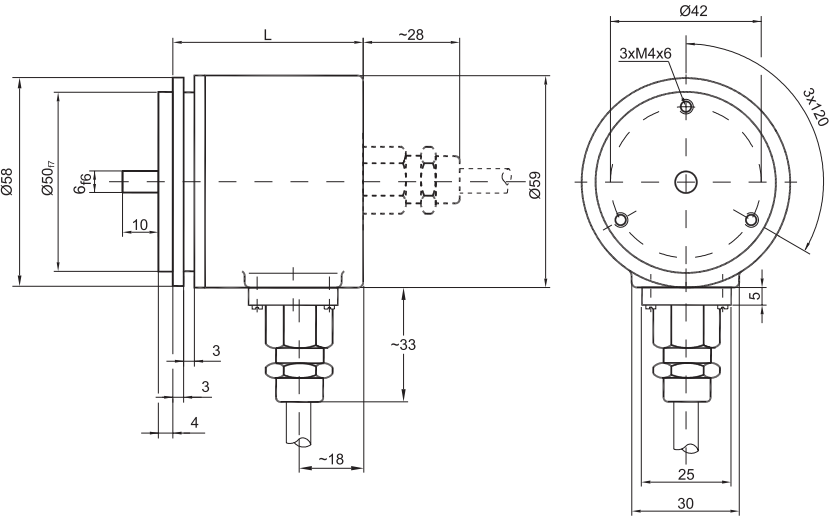
Preset-input (optional) S1		
Function	Signal level	
Preset value	0 (input open* or to GND)	Output position value
(Preset value = 0)	1 (input to + U _b or 4,5 V)	Accepted with falling edge (min. 100 ms)

* no wire connected to mating connector

Cable connection

Synchro flange (S)

Cable outlet (cable diameter = 8 mm)



Dimensional drawing WDG absolute synchro flange with CAW: axial; CRW: radial.
All dimensional specifications in mm.

Cable connection, 2 m with shield

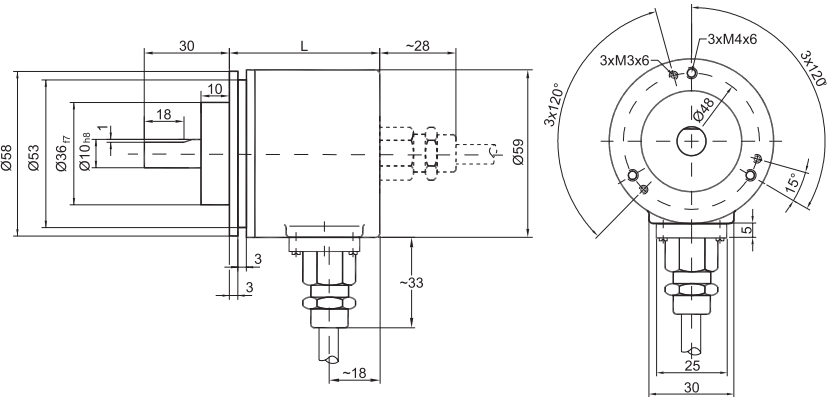
Version	SL	S1
Clock - (Takt -)	yellow	yellow
Clock + (Takt +)	green	green
Data +	grey	grey
Data -	pink	pink
Complement	red	red
+ U _b = 10-30 V	brown	brown
GND	white	white
Preset	-	black

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

Clamping flange (C10)

Cable outlet (cable diameter = 8 mm)

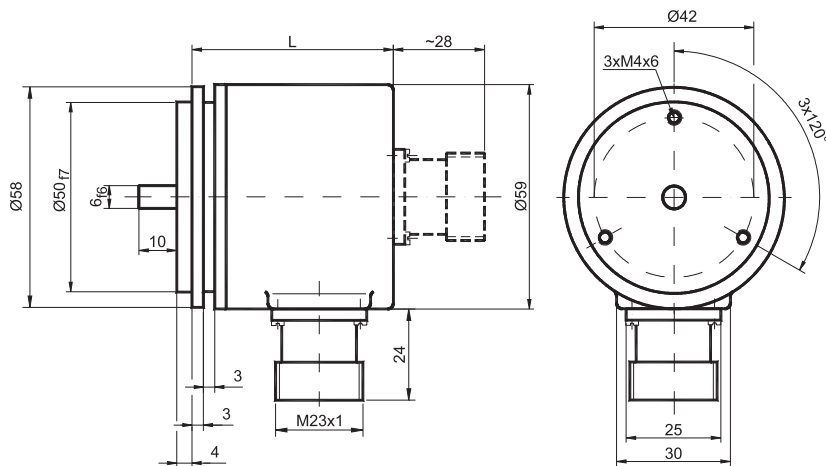


Dimensional drawing WDG absolute clamping flange with CAW: axial; CRW: radial.
All dimensional specifications in mm.

Connector:

Synchro flange (S)

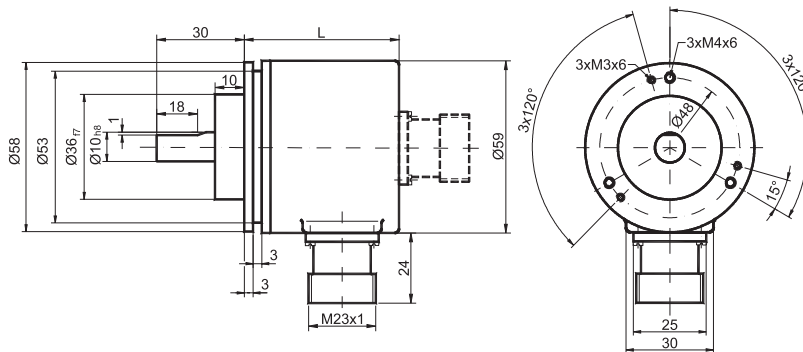
Connector, 12-pin, circular connector (suitable for cables: $\varnothing$ 6-9 mm)



Dimensional drawing WDG absolute synchro flange with PAL: axial, PRL: radial.
All dimensional specifications in mm.

Clamping flange (C10)

Connector, 12-pin, circular connector (suitable for cables: $\varnothing$ 6-9 mm)

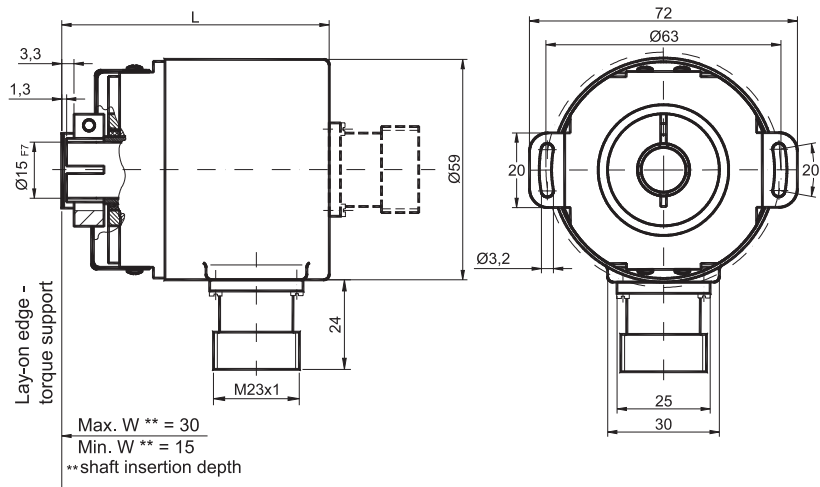


Dimensional drawing WDG absolute clamping flange with PAL: axial, PRL: radial.
All dimensional specifications in mm.

End hollow shaft (B)

Can also be supplied with cable outlet. See drawings for solid-shaft version.

Connector, 12-pin, circular connector (suitable for cables: $\varnothing$ 6-9 mm)

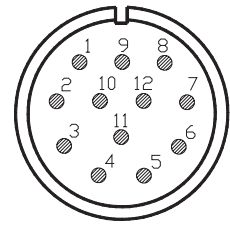


Dimensional drawing WDG absolute End hollow shaft with PAL: axial, PRL: radial.
All dimensional specifications in mm.

Mounting instructions for hollow shaft (B)

The clamping ring must only be tightened on the hollow shaft, if the shaft of the drive element is inserted in the hollow shaft.

The diameter of the hollow shaft can be adapted to suit 12 mm, 10 mm or 8 mm by means of a reducing adapter, (which is simply pushed into the hollow shaft). Thinner shafts are not recommended because of the mechanical loads.



Pin assignment

Version	Pin-Nr.	
	SL	S1
Clock - (Takt -)	1	1
Clock + (Takt +)	2	2
Data +	3	3
Data -	4	4
Complement	8	8
+ U_b = 10-30 V	11	11
GND	12	12
Preset	-	9

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

Permissible shaft movements of the drive element are listed in the following table:

	Axial	Radial
static	$\pm 0,3$ mm	$\pm 0,5$ mm
dynamic	$\pm 0,1$ mm	$\pm 0,2$ mm

Accessories

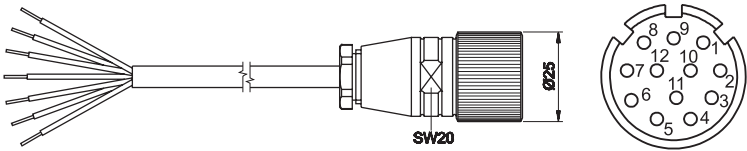
Description		Order-No.
Clamping claw for S6 und C10	3 pcs. per encoder	SP300
Adapter sleeve for hollow shaft	15 mm -> 12 mm, ± 0,3 mm	RR12
Adapter sleeve for hollow shaft	15 mm -> 10 mm, ± 0,3 mm	RR10
Adapter sleeve for hollow shaft	15 mm -> 8 mm, ± 0,3 mm	RR08

Suitable accessories can be found on our website:
www.wachendorff.de/absolutessi-engl or request the
data sheets on accessories for shaft encoders.
Please contact us for further options.

Cable assembly with female cable connector

Cable length: **Order No.:**
with 15 m cable **Standard**
KD-12-67-15-SSI

Female cable connector 12 pin, IP67, straight, with cable assembly

**Ordering information**

Revolutions [Bit]	Flange	Code	Electrical interface	Option	Electrical connection	Order No.:
0	Clamping flange	Gray	SSI	none	connector radial	WDG-SL00G-0013-C100-PRL
12	Clamping flange	Gray	SSI	none	connector radial	WDG-SL00G-1213-C100-PRL
0	Synchro flange	Gray	SSI	none	connector radial	WDG-SL00G-0013-S060-PRL
12	Synchro flange	Gray	SSI	none	connector radial	WDG-SL00G-1213-S060-PRL
0	hollow shaft 15 mm	Gray	SSI	none	connector radial	WDG-SL00G-0013-B150-PRL
12	hollow shaft 15 mm	Gray	SSI	none	connector radial	WDG-SL00G-1213-B150-PRL
0	Clamping flange	Gray	SSI	none	connector axial	WDG-SL00G-0013-C100-PAL
12	Clamping flange	Gray	SSI	none	connector axial	WDG-SL00G-1213-C100-PAL
0	Synchro flange	Gray	SSI	none	connector axial	WDG-SL00G-0013-S060-PAL
12	Synchro flange	Gray	SSI	none	connector axial	WDG-SL00G-1213-S060-PAL
0	hollow shaft 15 mm	Gray	SSI	none	connector axial	WDG-SL00G-0013-B150-PAL
12	hollow shaft 15 mm	Gray	SSI	none	connector axial	WDG-SL00G-1213-B150-PAL
0	Clamping flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-C100-CRW
12	Clamping flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-C100-CRW
0	Synchro flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-S060-CRW
12	Synchro flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-S060-CRW
0	hollow shaft 15 mm	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-B150-CRW
12	hollow shaft 15 mm	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-B150-CRW
0	Clamping flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-C100-CAW
12	Clamping flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-C100-CAW
0	Synchro flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-S060-CAW
12	Synchro flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-S060-CAW
0	hollow shaft 15 mm	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-B150-CAW
12	hollow shaft 15 mm	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-B150-CAW
0	Clamping flange	Gray	SSI	Preset	connector radial	WDG-S100G-0013-C100-PRL
12	Clamping flange	Gray	SSI	Preset	connector radial	WDG-S100G-1213-C100-PRL
0	Synchro flange	Gray	SSI	Preset	connector radial	WDG-S100G-0013-S060-PRL
12	Synchro flange	Gray	SSI	Preset	connector radial	WDG-S100G-1213-S060-PRL
0	hollow shaft 15 mm	Gray	SSI	Preset	connector radial	WDG-S100G-0013-B150-PRL
12	hollow shaft 15 mm	Gray	SSI	Preset	connector radial	WDG-S100G-1213-B150-PRL

Encoder WDG absolute Lift CANOPEN



Specifications

Mechanical Data

Housing:	Aluminium
Maximum axial loading:	40 N
Shaft-loading:	radial 110 N
Drag torque:	3 Ncm
Speed (continuous operation)	max. 12000 ⁻¹ Singleturn max. 6000 ⁻¹ Multiturn
Weight:	Singleturn: approx. 500 g, Multiturn: approx. 700 g

Shaft (mm)

	Synchro(S)	Clamping(C)	Hollow(B)
Shaft ø	6	10	15
Length	10	20	-
Insertion depth min/max.	-	-	15/30
Permissible shaft-loading	40N F _a 110N F _r	40N F _a 110N F _r	

Minimum service life in 10⁸ revolutions at
F_a = 40N

F _r =	60N	80N	110N
Synchro(S)	822	347	133
Clamping(C)	247	104	40

Environmental Data

Shock resistance: (EN 60068-2-27)	30 g (half-sine, 11 ms)
Permanent shock: (EN 60028-2-29)	10 g (half-sine, 16 ms)
Vibration resistance: (EN 60068-2-6)	10 g (10 Hz ... 2000 Hz)
Operating temperature:	- 40 ... + 85 °C *
Storage temperature:	- 40 ... + 85 °C *
* cable connection:	- 30... +70°C (unmoved) - 5... +70°C (moved)
Relative air humidity:	98 % non-condensing
Protection rating (EN 60529):	
Version connector hood:	IP65,
Version cable:	IP65,
shaft sealed to:	IP64

- Interface: LIFT CANOPEN V.01/CAN
 - Meets application profile Lift DSP417
 - Solid/hollow shaft: 6 or 10 mm / 15 mm
 - 8,192 steps per revolution (13 bits)
 - Max. 4,096 revolutions (12 bits)
 - Code: binary
 - Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning
- www.wachendorff.de/absoluteliftcanopen-engl

Electrical Data:

Resolution:	13 Bit (25 Bit Multiturn)
Baud rate:	max. 1 Mbaud
Data output:	Line-driver to 485 galvanically isolated via optocoupler
Addressing:	Rotary switches in the field bus hood or SDO
Step frequency LSB:	800 kHz
Linearity:	±1/2 LSB (12 bit), ± 2 LSB (16 bit)
Power supply:	10-30 V DC (absolute limit values) *
Current consumption:	max. 2,5 W
EMC:	Emitted:EN 61000-6-4
Immunity:	EN 61000-6-2
Service life, electrical:	> 10 ⁵ h
* Supply voltage to EN 50 178 (SELV)	

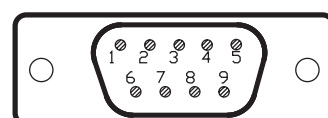
Interface, LIFT CANOPEN

Driver:	Transceiver to ISO11898, galvanically isolated by means of optocoupler
Programmable parameters	- Node number - Data rate

Version: angle encoder with SUB-D connectors / cable outlet

No connector hood is required with this version, making it ideal for low-cost requirements. The default settings for the angle encoder are: node number 32, baud rate 20 Kbaud. In order to adapt the encoder to a particular application, the user can re-configure the sensor with the help of SDO telegrams. The baud rate can be set in the range from 20 Kbaud up to 1Mbaud and the node number within the limits of 0 to 89. Internally 1 is automatically added to the programmed address. On request, the node number and baud rate can be preconfigured at the factory to suit the customer's requirements. The configuration of the node number and of the baud rate can as an option also be carried out by means of LSS services.

Signal	9 pin Sub-D Pin No.	open cable
CAN Ground	3	green
24 V Power supply	9	white
0 V Power supply	6	brown
CAN High	7	yellow
CAN Low	2	pink



9-pin SUB-D connectors, connector inlet or mating connector solder side

Setting device configuration for connector/ cable outlet

With regard to the object entries used to configure the baud rate or the node number, please refer again to the manufacturer-specific object dictionary (3000h / 3001h).

When delivered, the encoder is pre-configured as follows:

Node number 32, Daten rate 20 Kbaud.

The 20 Kbaud data rate is selected at power-on, as DS-301 recommends that all CANopen devices should support this transmission speed.

Index	Subindex	Object	Name	Data length	Attr.	M/O
3000h		VAR	Node number	Unsigned 8	rw	
3001h		VAR	Data rate	Unsigned 8	rw	

Node number setting

The standard object dictionary is supplemented by the following parameters:

Index	Subindex	Object	Name	Data length	Attr.	M/O
3000h		VAR	Node number	Unsigned 8	rw	

VAR:	variable
rw:	read, write

One byte is used to set the node number, where the value 1 is added internally in the encoder to the specified node number.

Setting the node number 5:

Bit	7	6	5	4	3	2	1	0
Valency	-	64	32	16	8	4	2	1
Example	0	0	0	0	0	1	0	0

$1 \cdot 4 + 0 + 0 = 4$, from this follows:
 $4 + 1$ (internally added) = node number 5

WARNING:

Although the node number is confirmed by the device via an SDO telegram, this is not accepted until after a

- Store Parameters Command (Object 1010 hex) acc. to CANopen and NMT Reset Module or NMT Reset Communication
- Store Parameters Command (Object 2300 hex), manufacturer-specific command with automatic Reset Node.

The use of the CANopen Store Parameters command (Object 1010h) is strongly recommended in order to avoid a network crash. Using the Store command causes the value programmed via Object 3000h to be saved in the EEPROM, but not yet to be actively accepted. This affords the opportunity to carry out further settings. Sending the NMT Reset Node or Reset Communication activates the new value.

Description of the telegram structure:

Master to absolute encoder: Set-Parameter

Identifier	Command	Index	Subindex	Service/Process Data			
SDO(tx)	Download	3000h		Byte 4	Byte 5	Byte 6	Byte 7
600hex+ node number hex	22	00	30	00	X	00	00

X: bits for setting the node number.

Absolute encoder to Master: Confirmation

Identifier	Command	Index		Subindex	Service/Process Data			
SDO(rx)	Download	3000h			Byte 4	Byte 5	Byte 6	Byte 7
500hex+ node number hex	60	00	30	00	00	00	00	00

Baud rate setting

The standard object dictionary is supplemented by the following parameters:

Index	Subindex	Object	Name	Data length	Attr.	M/O
3001h		VAR	Data rate	Unsigned 8	rw	

VAR:	variable
rw:	read, write

One byte is used to set the Data Rate, whereby in total 8 baud rates are supported.

Setting the baud rate:

Baud rate kBit/s	Bit						
	7	6	5	4	3	2	1
20	0	0	0	0	0	0	0
50	0	0	0	0	0	0	1
100	0	0	0	0	0	1	0
125	0	0	0	0	0	1	1
250	0	0	0	0	1	0	0
500	0	0	0	0	1	0	1
800	0	0	0	0	1	1	0
1000	0	0	0	0	1	1	1

Although the data rate is confirmed by the device via an SDO telegram, this is not accepted until after a

- Store Parameters Command (Object 2300 hex) with automatic Reset Node
- Store Parameters CANopen Command (Object 1010 hex) and NMT Reset Module or NMT Reset Communication

Description of the telegram structure:

Master to absolute encoder: Set-Parameter

Identifier	Kommando	Index		Subindex	Service/Prozessdaten			
SDO(tx)	Download	3001h			Byte 4	Byte 5	Byte 6	Byte 7
600hex+ node number hex	22	01	30	00	X	00	00	00

X: 3 bits for setting the baud rate, remaining Bits = 0

Absolute encoder to Master: Confirmation

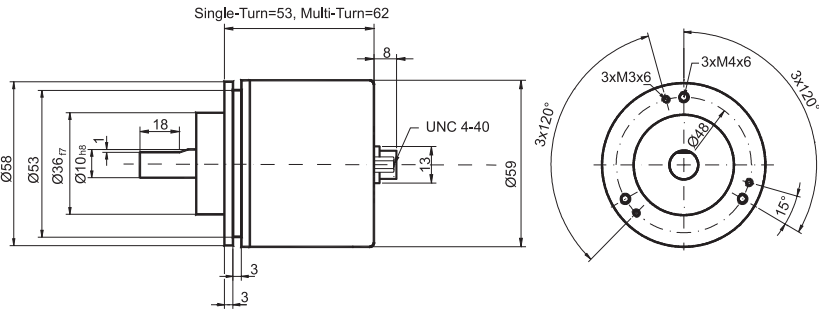
Identifier	Command	Index		Subindex	Service/Process Data			
SDO(rx)	Download	3001h			Byte 4	Byte 5	Byte 6	Byte 7
500hex+ node number hex	60	01	30	00	00	00	00	00

WARNING:

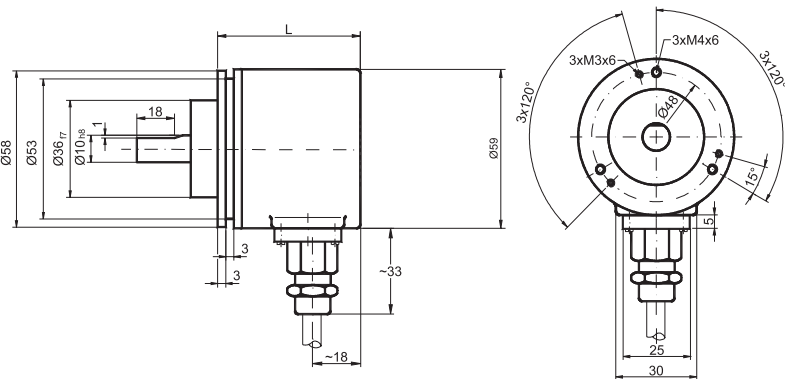
Activating the new baud rate may lead to the network crashing. For this reason only a point-to-point connection should be used between the encoder and the controller. Only after configuration should the encoder be integrated into an existing network.

Cable connection

Clamping flange (C10) Sub-D



Clamping flange (C10) cable outlet (cable diameter = 8 mm)



Length of housing

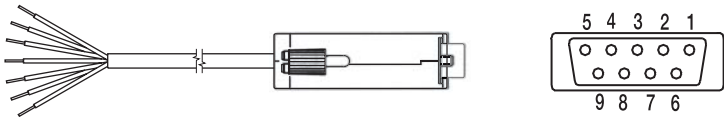
		L
Singleturn	axial	53
	radial	53
Multiturn	axial	62
	radial	62

All dimensional specifications in mm.

Cable assembly with SUB-D female connector

Cable length: Order No.:
with 15 m cable Standard
KD-09-20-15-S

SUB-D female connector, 9-pin, IP20, straight



Suitable accessories can be found on our website:
www.wachendorff.de/liftcanopen-engl or request the
data sheets on accessories for shaft encoders.
Please contact us for further options.

Ordering information

Resolutions [Bit]	Flange	Code	Electrical interface	Option	Electrical connection	Order No.:
0	Clamping flange	Binary	Lift CanOpen	none	cable outlet radial 2 m	WDG-C8B1B-0013-C100-CRW
12	Clamping flange	Binary	Lift CanOpen	none	cable outlet radial 2 m	WDG-C8B1B-1213-C100-CRW
0	Clamping flange	Binary	Lift CanOpen	none	9-pin Sub-D axial	WDG-C8B1B-0013-C100-PA9
12	Clamping flange	Binary	Lift CanOpen	none	9-pin Sub-D axial	WDG-C8B1B-1213-C100-PA9

Overview measuring- and draw-wire systems



**Installation Kit for frequency -
controlled lifts with shaft encoder
WDGAS58B**

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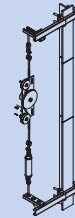
Guided cable shaft copying WDGMS

Page 95



**Installation Kit for frequency -
controlled lifts with end hollow shaft
encoder WDGAS58E**

Page 86



**Silent Move, Guided belt measuring
system**

For heights up to 120 metres

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Robust length measurement system

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**Silent Move, Circumferential belt
measuring system**

For heights up to 70 metres

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Draw-wire system SZG65

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Draw-wire system SZG81

Page 91



Draw-wire system SZG122

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Paguflex coupling:

The Paguflex coupling serves to compensate for any mis-alignment between the drive and the encoder. The coupling has extremely high compensation capabilities.

Features: excellent compensation capabilities

Mis-alignment: axial: max. 7,5mm
radial: max. 3,5mm
angular: max. 15°

Max. operating speed: 3.000 rpm.

Starting torque: 1,3Nm

Material:

- Hub: metal, anticorrosive

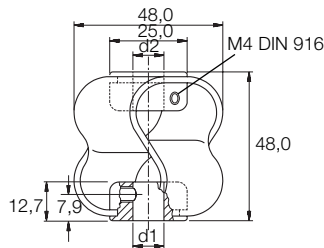
- Compensating element: PUR

Weight: 85 g

Fixing: 2 x M4 DIN 916

Motor starting torque: 100 Ncm

Operating temperature: -20°C to +80°C



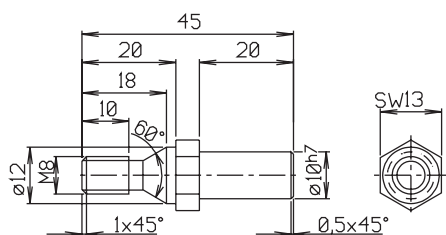
Order No.: PF481010

Shaft adapters



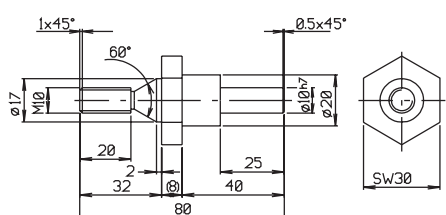
Shaft adapters:

The shaft adapters are screwed into an appropriate thread on the lift and allow a simple connection via the Paguflex coupling.



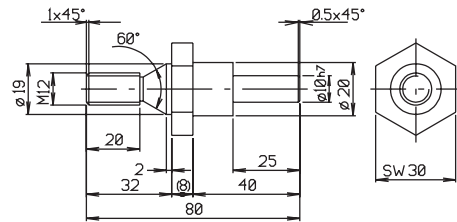
Shaft adapter M8

Order No.: WDGWA10M08



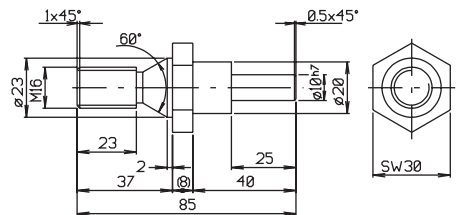
Shaft adapter M10

Order No.: WDGWA10M10



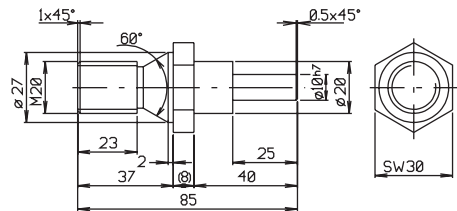
Shaft adapter M12

Order No.: WDGWA10M12



Shaft adapter M16

Order No.: WDGWA10M16



Shaft adapter M20

Order No.: WDGWA10M20

Note:

XX: Please insert the code corresponding to the required shaft adapter:

Shaft adapter 10/M8: 08

Shaft adapter 10/M10: 10

Shaft adapter 10/M12: 12

Shaft adapter 10/M16: 16

Shaft adapter 10/M20: 20

YYYY: Please specify required PPR: 1024, 2048 oder 4096

Ordering Information WDGAS58B:

Description:	Order No.:
Installation Kit 10-30 VDC HTL comprising: - WDG58B-YYYY-ABN-H24-SH8 - YYYY: with 1024, 2048, 4096 PPR - 3 channels, A, B and zero marker pulse N - H24: 10 - 30 VDC power supply - SH8: radial connector, 8 pin - MW58B - KD84015SH8: 15 m ready-made shielded cable - PF481010 - XX: Shaft adapter: 08, 10, 12, 16 or 20	WDGAS58BYYYYH24XX
Installation Kit 5 VDC TTL, RS422 comprising: - WDG58B-YYYY-ABN-R05-SH8 - YYYY: with 1024, 2048, 4096 PPR - 6 channels, A, B and zero marker pulse N - R05: 5 VDC TTL power supply with inv. output circuit - SH8: radial connector, 8 pin - MW58B - KD84015SH8: 15 m ready-made shielded cable - PF481010 - XX: Shaft adapter: 08, 10, 12, 16 or 20	WDGAS58BYYYYR05XX

Installation Kit for frequency-control lifts WDGAS58E with end hollow shaft encoder



- Easy installation on all motor shafts
 - Flexible attachment possibilities
 - Space-saving
 - TTL, HTL output
 - Threads: M8, M10, M12, M16 und M20
- www.wachendorff.de/wdgas58e-engl

The following installation kits are available for fitting the encoder to a frequency controlled lift. Every installation kit consists:
1 x Encoder, 1 x with 15 m ready-made shielded cable, 1 x shaft adapter

Mechanical Data

Housing

- Flange: Aluminium
- Housing: Aluminium, powder coated
- Torque Support:
 - 1. Spring plate Incl. 1 spring plate WDGDS10001
 - Compensation: axial: max. 1,5 mm
 - radial: max. 0,1 mm
- Operating speed: 6.000 rpm

Hollow shaft

- Material: stainless steel
- Diameter: 10
- Load on shaft end: max. 80 N radial
- Starting torque: approx. 1,6 Ncm at ambient temperature
- Attachment: permanently attached clamping ring

Bearings

- Type: 2 precision ball bearings
- Service life:
 - 10⁹ revs. at 100% of full rated shaft load
 - 10¹⁰ revs. at 40%
 - 10¹¹ revs. at 20%

Weight:

approx. 220 g

Connections:

SH8: radial connector, 8 pin

Protection rating:

IP65

(EN 60529)

Operating temperature:

-20... +80°C, 1Vss: -10... +70°C

Storage temperature:

-30... +80°C

Encoder-Order No.:

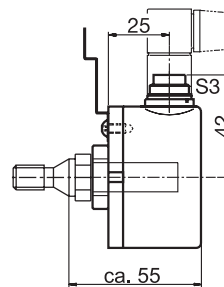
WDG58E-YYYY-ABN-H24-SH8
 - YYYY: with 1024, 2048, 4096 PPR
 - 3 channels, A, B and zero marker pulse N
 - H24: 10 - 30 VDC HTL power supply
 - SH8: radial connector, 8 pin

WDG58E-YYYY-ABN-R05-SH8

- YYYY: with 1024, 2048, 4096 PPR
 - 6 channels, A, B and zero marker pulse N
 - 5 VDC TTL power supply with inv. output circuit
 - SH8: radial connector, 8 pin

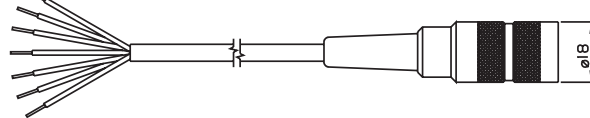
YYYY: Please specify required PPR: 1024, 2048 oder 4096

Installation Kit WDGAS58E:



Cable:

The cable is 15m in length and is shielded, however the shield is not connected to the connector housing. With a mated connector, the encoder meets protection class IP40.

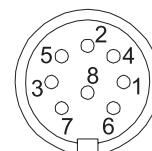


The cable has a connection as follows:

Function	Colour
Positive	brown
Negative	white
A	green
A inv.	red
B	yellow
B inv.	black
N	gray
N inv.	violet
Shield:	cable braiding
Order No.:	KD84015SH8

Pin identification SH8

Function	Pin HTL	Pin TTL
Positive	2	2
Negative	1	1
A	3	3
A inv.	-	6
B	4	4
B inv.	-	7
N	5	5
N inv.	-	8



The view of the soldered side of the connector corresponds to the view of the pin arrangement on the encoder.

Shaft adapters



Note:

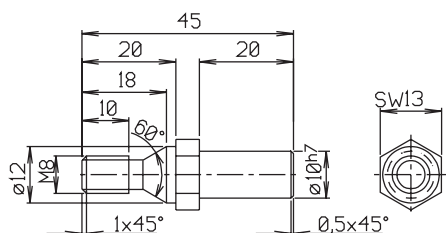
XX: Please insert the code corresponding to the required shaft adapter:

Shaft adapter 10/M8:	08
Shaft adapter 10/M10:	10
Shaft adapter 10/M12:	12
Shaft adapter 10/M16:	16
Shaft adapter 10/M20:	20

YYYY: Please specify required PPR: 1024, 2048 or 4096

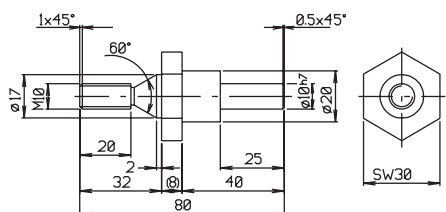
Shaft adapters:

The shaft adapters are screwed into an appropriate thread on the lift.



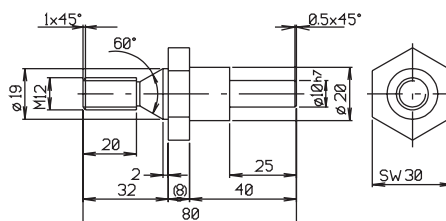
Shaft adapter M8

Order No.: WDGWA10M08



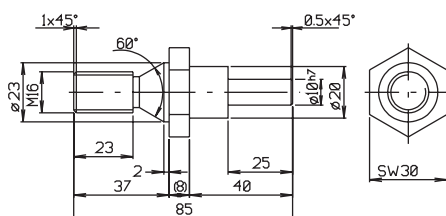
Shaft adapter M10

Order No.: WDGWA10M10



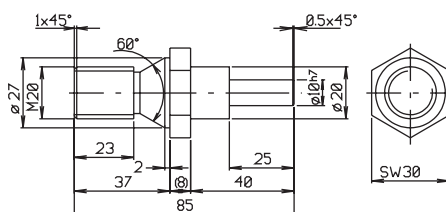
Shaft adapter M12

Order No.: WDGWA10M12



Shaft adapter M16

Order No.: WDGWA10M16



Shaft adapter M20

Order No.: WDGWA10M20

Ordering Information WDGAS58E:

Description:	Order No.:
Installation Kit 10-30 VDC HTL comprising: - WDG58E-YYYY-ABN-H24-SH8 - YYYY: with 1024, 2048, 4096 PPR - 3 channels, A, B and zero marker pulse N - H24: 10 - 30 VDC power supply - SH8: radial connector, 8 pin - KD84015SH8: 15 m ready-made shielded cable - XX: Shaft adapter: 08, 10, 12, 16 or 20	WDGAS58EYYYYH24XX
Installation Kit 5 VDC TTL, RS422 comprising: - WDG58E-YYYY-ABN-R05-SH8 - YYYY: with 1024, 2048, 4096 PPR - 6 channels, A, B and zero marker pulse N - R05: 5 VDC TTL power supply with inv. output circuit - SH8: radial connector, 8 pin - KD84015SH8: 15 m ready-made shielded cable - XX: Shaft adapter: 08, 10, 12, 16 or 20	WDGAS58EYYYYR05XX

Robust length measurement system

- PAXI pre-selection counter/tachometer with power supply 85-250 VAC and sensor supply for the encoder
- Option for length measurement: Relay output card with 2 converters
- Spring arm for any required installation and running direction, adjustable pre-tensioning force: 20, 25 and 30 N for optimum contact pressure and compensation for unevenness
- Incremental encoder WDG 58B with 2 m cable
- Measuring wheel MR500 for encoder, suitable for various surfaces
- Resolution 1 mm, other resolutions available
- Further versions www.wachendorff.de/lms-engl



Measurement system

Ordering information

Description	Order-No.
Industrial counters/pre-selection counters/ Speed display	PAXI0000
Option: Relay output card with 2 converters, 5A/230 VAC for PAXI	PAXCDS10
Matching incremental encoder WDG 58B, 500 I/U and 2 m cable	WDG58B500ABNG24K2
Spring arm for length measurement on belts	WDGMA10000
Measuring wheel for rubber, textiles and wood	MR500KR10
Measuring wheel for smooth wood, plastic, greased metals or wire	MR500KH10
Measuring wheel for carpets or textiles	MR500NG10
Measuring wheel for paper, cardboard, cable, rough wood, grease-free metals or painted surfaces	MR500KV10
Measuring wheel for wood with smooth surface, plastics, wire, greased metals	MR200KH10
Measuring wheel for paper, cardboard, cable, grease-free metals, rough wood, plastics	MR200KG10

Draw-wire system SZG65



- Exceptionally rugged length sensor
- Measuring range: 0 - 1.250 mm
- Output: incremental signals
- IP65 encoder ready-mounted
www.wachendorff.de/szg65-engl

The draw-wire encoder SZG 65 was developed for use in harsh environments. With its 4 different lengths, it can be put into service very economically. The various methods of installation mean high flexibility. It can be used even where space is tight, thanks to its compact dimensions.

The SZG 65 can be mounted quickly and with its highly precise mechanics provides reliable accurate length measurement. The intelligent spring-suspension and the nylon-coated stainless-steel wire cable guarantee long-service life, even in difficult operating conditions. The encoder is already installed.

Typical areas of application include:

lift/elevators, lifting platforms, theatre stages, fork lifts and cranes.

Measurement ranges:

0 - 1.250 mm,

Resolution Measurement ranges:

Various, depending on encoder up to 12,5 pulses/mm or 1250 pulses/inch at 4 x edge evaluation
WDG 40Z with 500 I/U = Resolution: 5 pulses/mm
WDG 40Z with 1000 I/U = Resolution: 10 pulses/mm
WDG 40Z with 1250 I/U = Resolution: 12,5 pulses/mm
WDG 40Z with 2500 I/U = Resolution: 25 pulses/mm

Electrical Output:

2 channels (AB) are shifted by 90° . 10 - 30 Volt, pushpull, 40 mA and zero pulse per rotation.

Deviation: Less than 0.02 % of the final value.

Measuring wire:

0,48 mm of thick nylon coated high-grade steel wire.
(incl. coating)

Wire connection: eye, see drawing
max. wire speed: 7,5 m/sec.
Pull out strength: approx.0,14 kg

System-unit housing: anodised aluminium

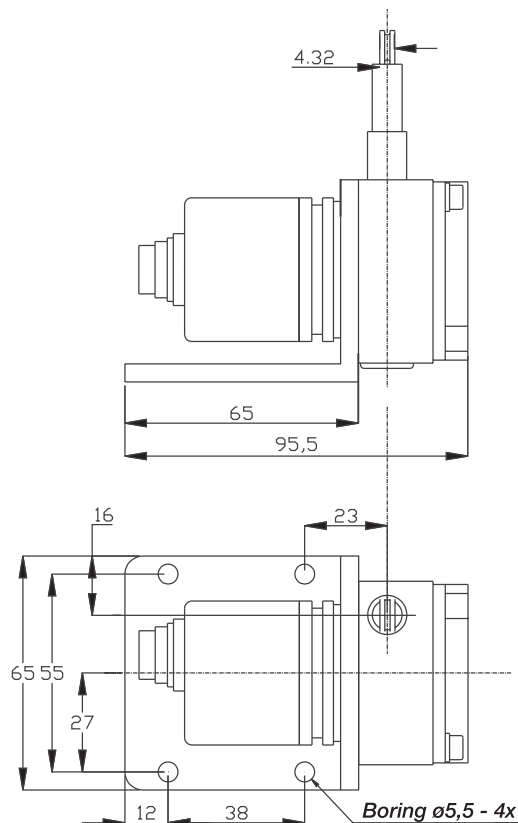
Weight: SZG incl. encoder max. 1 kg

Life expectancy: at least 10 million cycles

Operating temperature: -20... +70 °C

Storage temperature: -30... +80 °C

Cable connection



All details in mm and dependent on the encoder configuration

Order No.:

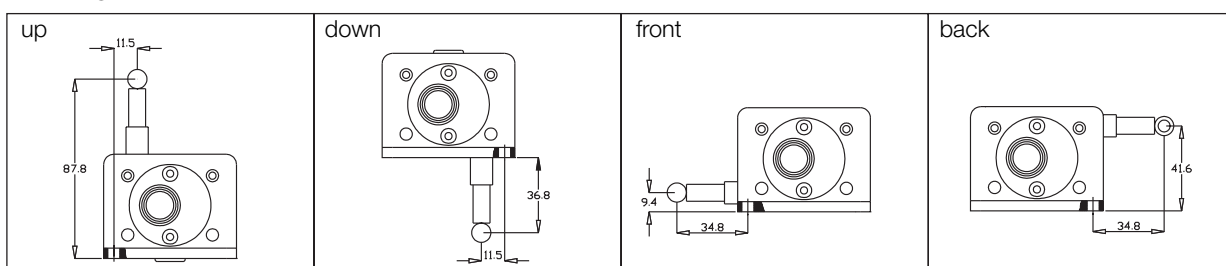
Direction:

UP

DN

FR

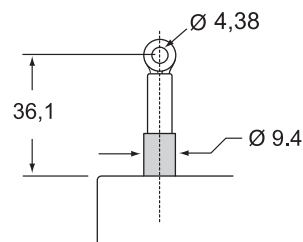
BK



Example of the order of a Draw-wire system:

SZG65 - 1.250 - N - UP - G24 - 05

1.250: Draw wire system 1.250 mm measurement range;
 N: nylon coated high-grade steel wire
 UP: wire exit up
 G24: incl. incremental encoder 40Z with channels:
 ABN, signal output: G24 = 10-30 VDC, HTL
 Connections: connector 7-pin, axial
 05: Resolution 5 pulses/mm.



Order number: SZG65 - 1.250 - N - UP - G24 - 05

Position: 1 2 3 xx yy zz

Short description	Position	Part of order number	Notice/Description
Type	1	SZG65	Draw wire system, housing 65 mm
Measurement range (MB)	2	1.250	measurement range 1.250 mm
measurement wire	3	N	0,48 mm of thick nylon coated high-grade steel wire
mounting direction	xx	UP DN FR BK	Wire exit up Wire exit down Wire exit back Wire exit back
Output	yyy	G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL	Channels: ABN, signal output
Solution *1	zz	05 10 12 25 zz*	5 pulses per mm 10 pulses per mm 12,5 pulses per mm 25 pulses per mm You specify another encoder, please, use the order number of the WDG 40Z type. This encoder is assembled by us.

*1 if you enter here 5, 10 or 25 you will get a ready-mounted encoder;

Order number: WDG 40Z-YYYY-ABN-G24-S2 (pulses/mm):

For resolution 5 pulses/mm = 500, 10 pulses/mm = 1000, 12,5 pulses/mm = 1250 and 25 pulses/mm = 2500, with the following qualities:

Channels: ABN: 2 channels shifted by 90° plus inverted signals

Output: G24: 10-30 Volt, 40 mA push-pull G05 = 4,75 - 5,5 Volt, 40 mA push-pull

Connection: connector 7-pin, axial (PIN-arrangement: A=3, B=4, N=5, GND=1, +UB=2, Error=6)

If you like to specify your individual encoder, please enter at the order number xx

and define from the data sheet WDG 40Z your special encoder.

Ordering information:

Mounting direction: Wire exit up = UP Wire exit down = DN Wire exit front = FR Wire exit back = BK	Output circuit: G24 = 10-30 VDC, HTL G05 = 5 VDC, TTL
Measurement wire: 0.48 mm of thick nylon coated high-grade steel wire = N	Resolution: 05 = 5 pulses per mm 10 = 10 pulses per mm 12 = 12,5 pulses per mm 25 = 25 pulses per mm You specify another encoder, please use the order number of the WDG 40Z type. = zz
Measurement range: 1.250 mm = 1250	

Example	SZG65	1250	N	UP	G24	05
Your system	SZG65					

Draw-wire system SZG 81



- Exceptionally rugged length sensor
- Measuring range 0-2,500 mm to 0-6,250 mm
- Output: incremental signals
- IP65 encoder ready-mounted
- Can be supplied with other device types up to 42 meters
www.wachendorff.de/szg81-engl

The draw-wire encoder SZG 81 was developed for use in harsh environments. With its 4 different lengths, it can be put into service very economically. The various methods of installation mean high flexibility. It can be used even where space is tight, thanks to its compact dimensions.

The SZG 81 can be mounted quickly and with its highly precise mechanics provides reliable accurate length measurement. The intelligent spring-suspension and the nylon-coated stainless-steel wire cable guarantee long-service life, even in difficult operating conditions. The mechanics have been perfectly matched to the encoder model WDG58A. The encoder is already installed.

Typical areas of application include:

lifts/elevators, lifting platforms, theatre stages, fork lifts and cranes.

Measurement ranges:

0 - 2500 mm, 0 - 3500 mm, 0 - 5000 mm and 0 - 6250 mm.
Greater lengths up to 42000 mm on enquiry

Resolution Measurement ranges:

Various, depending on encoder up to 100 pulses/mm at 4 x edge evaluation
WDG 58A with 1000 I/U = Resolution: 5 pulses/mm
WDG 58A with 2000 I/U = Resolution: 10 pulses/mm
WDG 58A with 5000 I/U = Resolution: 25 pulses/mm

Electrical Output:

2 channels (AB) are shifted by 90°. Pulses 10 - 30 Volt, push-pull, 40 mA and zero pulse per rotation = G24

2 channels (AB) are shifted by 90°. Pulses 4,75 - 5,5 Volt, push-pull, 40 mA and zero pulse per rotation + inverted signals = I05

Deviation: Less than 0.02% of the final value.

Measuring wire:

0,86 mm of thick nylon coated high-grade steel wire.

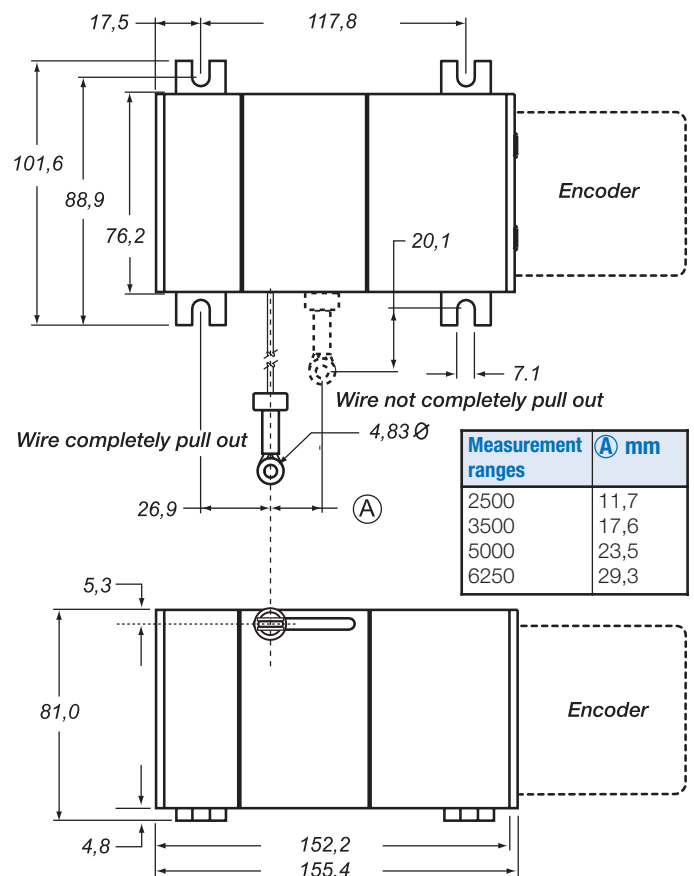
Wire connection: eye
max. wire speed: 7,5 m/sec.
Pull out strength: approx. 0,5 kg

System-unit housing: anodised aluminum

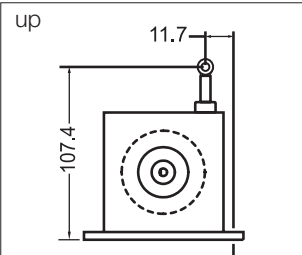
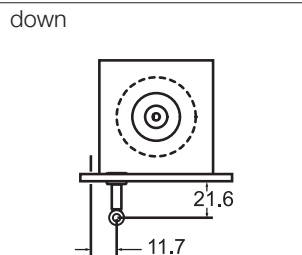
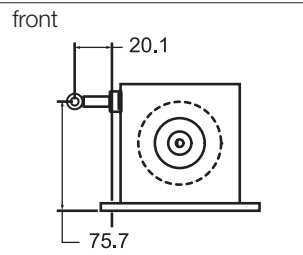
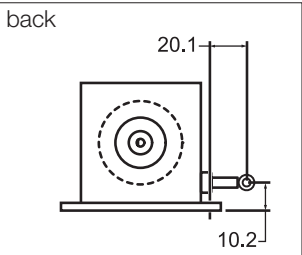
Weight: SZG incl. Encoder max. 2,5 kg

Life expectancy: At least 10 million cycles

Operating temperature: -20... +70 °C
Storage temperature: -30... +80 °C



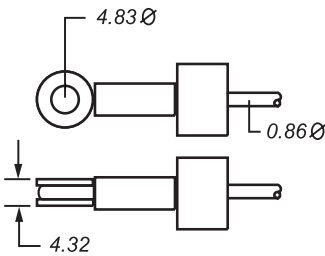
All details in mm and dependent on the encoder configuration.

Order No.:	UP	DN	FR	BK
Direction:	up	down	front	back
				

Example of the order of a Draw-wire system:

SZG81 - 5.000 - N - UP - G24 - 25

- 5.000:
- Draw wire system with 5.000 mm measurement range;
- N:
- nylon coated high-grade steel wire
- UP:
- Wire exit up
- G24:
- Incl. incremental encoder 58A with channels
ABN, signal output G24
- Connections:
- Connector 7-pin, radial
- 25:
- Resolution 25 pulses/mm



Order number: SZG81 - 5.000 - N - UP - G24 - 25
Position: 1 2 3 x yy zz

Short description	Position	Part of order number	Notice/Description
Type	1	SZG81	Draw wire system, housing 81 mm.
Measurement range (MB)	2	2.500 3.500 5.000 6.250	Measurement range 2.500 mm Measurement range 3.500 mm Measurement range 5.000 mm Measurement range 6.250 mm
Measurement wire	3	N	0,86 mm of thick nylon coated high-grade steel wire
Mounting direction	xx	UP DN FR BK	Wire exit up Wire exit down Wire exit front Wire exit back
Output	yyy	G24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp.	Channels: ABN, signal output Channels: ABN, ABN, signal output
Resolution *1	zz	05 10 25 zz*	5 pulses/mm 10 pulses/mm 25 pulses/mm You specify another encoder, please, use the order number of the WDG 58 A type This encoder is assembled by us

zz* mounted Encoder WDG 58A - zzzz - ABN - yyy - S3/5 (ppr):

For resolution of 5 pulses/mm = 1000, 10 pulses/mm = 2000 und 25 pulses/mm = 5000, with the following qualities:
Channels: ABN: 2 channels shifted by 90° plus inverted signals
Output: G24: 10-30 Volt, 40 mA push-pull. I05: 5 VDC, 40 mA push-pull.
Connections: Connector 7-pin, radial = S3 (PIN-arrangement: A=3, B=4, N=5, 0V=1, 10-30VDC=2)
 Connector 12-pin, radial = S5 ((PIN-arrangement: A=5, B=8, N=3, A inv.=6, B inv.=1, N inv.=4, 0V=10, 5 VDC=12)
If you like to specify your individual encoder, please enter at the order number zz and define from the data sheet WDG 58 your special encoder.

Ordering information:

Mounting direction

Wire exit up = UP
Wire exit down = DN
Wire exit front = FR
Wire exit back = BK

Measuring wire:

0,86 mm of thick nylon coated high-grade steel wire = N

Measurement range:

2.500 mm = 2500
3.500 mm = 3500
5.000 mm = 5000
6.250 mm = 6250

Output circuit:

G24 = 10-30 VDC, HTL
I05 = 5 VDC, RS422 TTL comp.

Resolution:

05 = 5 pulses/mm
10 = 10 pulses/mm
25 = 25 pulses/mm

You specify another encoder, please use the order number of the WDG 58 A type = zz

Example

SZG81

2500

N

UP

G24

05

Your system

SZG81

92

Draw-wire system SZG122



- 0 - 1000 cm to 0 - 4300 cm
 - Exceptionally rugged length sensor
 - Measuring range
 - Output: incremental signals
 - IP65 encoder ready-mounted
- www.wachendorff.de/szg122-engl

The draw-wire encoder SZG 122 was developed for use in harsh environments. With its 4 different lengths, it can be put into service very economically. The various methods of installation mean high flexibility. It can be used even where space is tight, thanks to its compact dimensions.

The SZG 122 can be mounted quickly and with its highly precise mechanics provides reliable accurate length measurement. The intelligent spring-suspension and the nylon-coated stainless-steel wire cable guarantee long-service life, even in difficult operating conditions.

The mechanics have been perfectly matched to the encoder model WDG58A. The encoder is already installed.

Typical areas of application include:

lifts/elevators, lifting platforms, theatre stages, fork lifts and cranes.

Measurement ranges:

0 - 1.000 cm, 0 - 1.500 cm, 0 - 2.000 cm, 0 - 2.500 cm,
0 - 3.000 cm, 0 - 3.800 cm and 0 - 4.300 cm

Resolution Measurement ranges:

WDG 58A with 1000 I/U = Resolution: 3,23 pulses/mm
2000 I/U = Resolution: 6,46 pulses/mm
5000 I/U = Resolution: 16,13 pulses/mm

Electrical Output:

2 channels (AB) are shifted by 90°. Pulses 10 - 30 Volt, push-pull,
40 mA and zero pulse per rotation = G24
2 channels (AB) are shifted by 90°. Pulses 4,75 - 5,5 Volt, push-pull,
40 mA and zero pulse per rotation + inverted signals = I05

Deviation: Less than 0.02% of the final value.

Measuring wire:

0.86 mm of thick nylon coated high-grade steel wire.

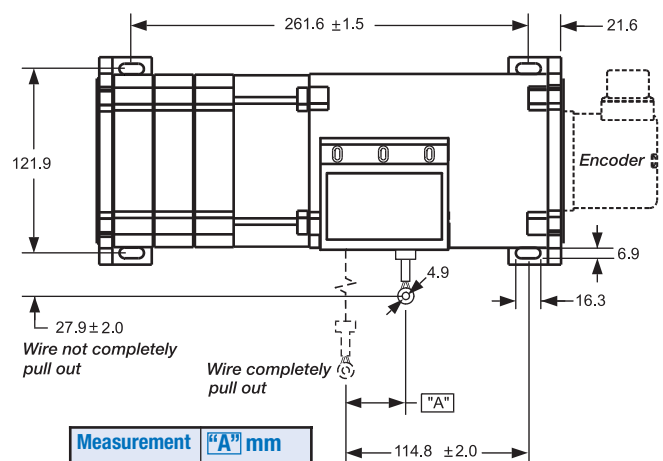
Wire connection: eye
max. Wire speed: 1,5 m/sec.

System-unit housing: anodised aluminium

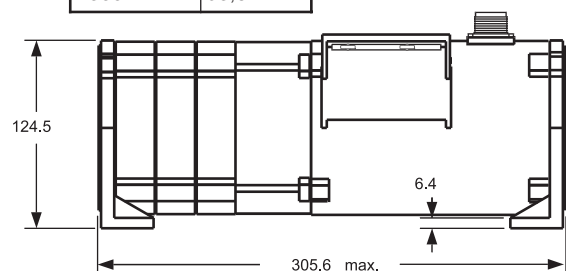
Weight: SZG incl. Encoder max. 6,5 kg.

Life expectancy: At least 10 million cycles.

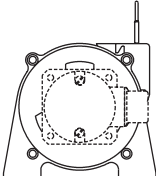
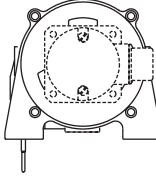
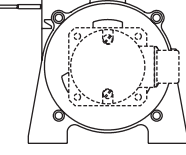
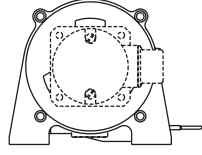
Operating temperature: -20... +70 °C.
Storage temperature: -30... +80 °C.



Measurement ranges	"A" mm
1000	25,9
1500	44,7
2000	40,1
2500	50,2
3000	37,8
3800	47,2
4300	53,6



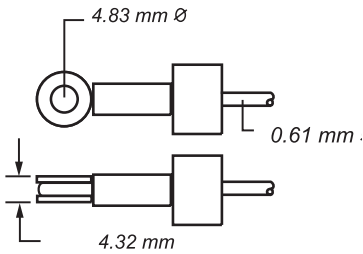
All details in mm and dependent on the encoder configuration.

Order No.:	UP	DN	FR	BK
Direction:	up	down	front	back
				

Example of the order of a Draw-wire system:

SZG122 - 2500 - N - UP - G24 - 3

- 2.500:
- Draw wire system with 2.500 cm Measurement range;
- N:
- nylon coated high-grade steel wire
- UP:
- Wire exit up
- G24:
- Incl. incremental encoder 58A with channels
ABN, signal output G24
- Connections:
- Connector 7-pin, radial
- 3:
- Resolution 3,23 pulses/mm.



Order number: SZG122 - 2500 - N - UP - G24 - 3
Position: 1 2 3 xx yy zz

Short description	Position	Part of order number	Notice/Description
Type	1	SZG122	Draw wire system, housing 122 mm.
Measurement range (MB)	2	1.000 1.500 2.000 2.500 3.000 3.800 4.300	Measurement range 1.000 cm Measurement range 1.500 cm Measurement range 2.000 cm Measurement range 2.500 cm Measurement range 3.000 cm Measurement range 3.800 cm Measurement range 4.300 cm
Measurement wire	3	N	0.86 mm of thick nylon coated high-grade steel wire
Mounting direction	xx	UP DN FR BK	Wire exit up Wire exit down Wire exit front Wire exit back
Output	yyy	G24 = 10-30 VDC, HTL I05 = 5 VDC, RS422 TTL comp.	Channels ABN, signal output Channels: ABN, ABN, signal output
Resolution *1	zz	3 6 16 zz*	3,23 pulses/mm 6,46 pulses/mm 16,13 pulses/mm You specify another encoder, please, use the order number of the WDG 58 A type. This encoder is assembled by us.

zz* mounted Encoder WDG 58A - zzzz - ABN - yyy - S3/5 (ppr):

For resolution 3,23 Imp./mm, of with the following qualities:
Channels: ABN: 2 channels shifted by 90° plus inverted signals
Output: G24: 10-30 Volt, 40 mA push-pull. I05: 5 VDC, 40 mA push-pull.
Connections: Connector 7-pin, radial = S3 (PIN-arrangement: A=3, B=4, N=5, 0V=1, 10-30VDC=2)
Connector 12-pin, radial = S5 (PIN-arrangement: A=5, B=8, N=3, A inv.=6, B inv.=1, N inv.=4, 0V=10, 5 VDC=12)
If you like to specify your individual encoder, please enter at the order number zz and define from the data sheet WDG 58A your special encoder.

Ordering information:

Mounting direction:

Wire exit up = UP

Wire exit down = DN

Wire exit front = FR

Wire exit back = BK

Measuring wire:

0.86 mm of thick nylon coated high-grade steel wire = N

Measurement range:

1.000 cm = 1000 3.000 cm = 3000

1.500 cm = 1500 3.800 cm = 3800

2.000 cm = 2000 4.300 cm = 4300

2.500 cm = 2500

Output circuit:

G24 = 10-30 VDC, HTL

I05 = 5 VDC, RS422 TTL comp.

Resolution:

3 = 3,23 pulses/mm

6 = 6,46 pulses/mm

16 = 16,13 pulses/mm

You specify another encoder, please use the order number of the WDG 58 A type = zz

Example

SZG122

2500

N

UP

G24

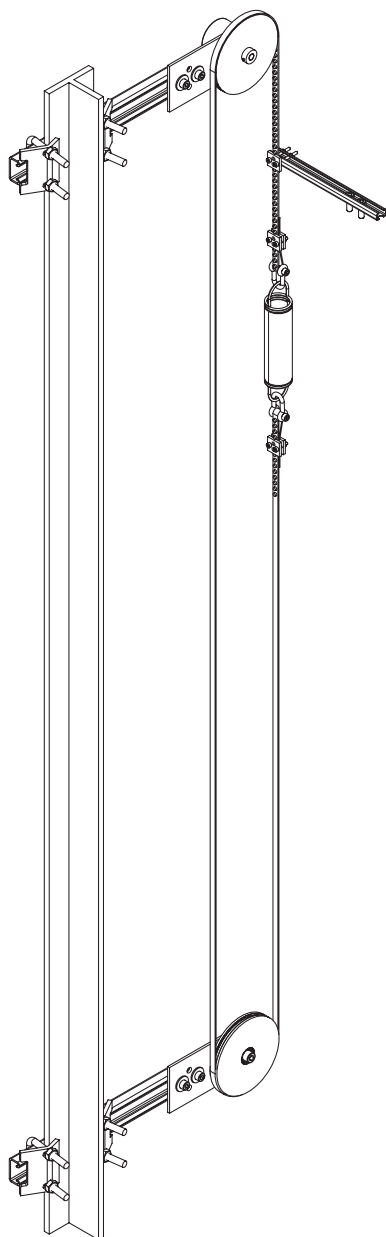
03

Your system

SZG122

Circumferential belt measuring system WDGMSUN Silent Move

For heights up to 70 metres



- Quiet and non-slip digital shaft copying for universal mounting on a lift cabin
- Use up to speeds of 4 m/sec.
- Particularly quiet and smooth-running, thanks to special belts and low-noise suspension.
- User-friendly, reliable alternative to switches and sensors.
- Accuracy in the shaft:
 - Incremental encoder WDG up to 0,089 mm/Imp. at 5000 pulses
 - Absolute encoder WDG multiturn, with 8192 steps/turn 13 Bit (25 Bit Multiturn) and 4096 turns 12 Bit, with CANopen-Lift or SSI interface.
- Fast and flexible installation with complete set of mechanical parts.
www.silent-move.de

Noticeably quieter in a noise comparison*:

Conventional System: 92 db

Silent Move: 68 db

*measured directly at the idler pulley at 4 m/sec.

The quiet **Silent Move** belt shaft copying devices are systems which are installed quickly and easily in the shaft.

All installation components required for standard installation to the lift cab rail or on the wall are supplied.



Put together your own system for shaft copying, by selecting an encoder and specifying the length of the special belt.



Incremental encoder
WDG58B



Absolute encoder
WDGSL00G



Self-guiding special belt for exceptionally quiet, non-slip measuring with noise-reducing wheel.

Calculation of the limit frequency:

$$f_g \text{ (Hz)} = \frac{\text{Impulse number of encoder (PPR)} \times \text{max. speed (m/sec)}}{\text{Circumference of pulley (m)}}$$

Example:

$$f_g \text{ (Hz)} = \frac{2500 \text{ PPR} \times 1,6 \text{ m/sec.}}{0,445478 \text{ m}} = 8979,12 \text{ Hz}$$

Calculation of resolution in the lifting hole:

$$\text{Res. in pulses/mm} = \frac{\text{Impulse number of encoder (PPR)}}{\text{Circumference of pulley (mm)}}$$

Example:

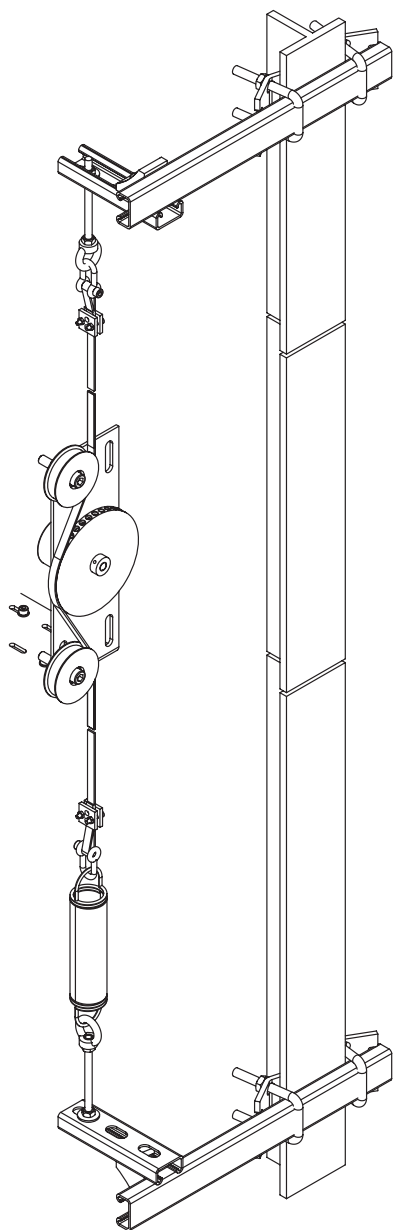
$$\text{Res. in pulses/mm} = \frac{2500 \text{ PPR}}{445,478 \text{ mm}} = 5,611949412 \text{ l/mm} \triangleq 0,1781912 \text{ mm}$$

Ordering information: - Circumferential belt measuring system WDGMSUN:

Description:	Order No.:
Incremental variants System (without encoder): 2 guide pulleys, encoder attachment, tensioning device for the belt and corresponding assembly components. Please order the special belt separately. (see below: Silent Move special belt, calculation of length)	WDGMSUN
System with incremental encoder WDG 58B600ABNG24SC8: For a accuracy of measurement of 0,742463333 mm or 1,346867859 impulses per mm with a limit frequency of 5.388 Hz and a cab speed of 4 m/s. Encoder type 58B600ABNG24SC8: Impulse number: 600 PPR, channels AB and zero impulse, power supply 10-30 VDC, channels push-pull, sensor connector 8-pin radial, 15 m cable (KI 8-67-15 S)	WDGMSUN58B600ABNH24SC8
System with incremental encoder 58B1000ABNG24SC8 and 15 m cable (KI 8-67-15 S): For a accuracy of measurement of 0,445478 mm or 2,244779765 Impulse pro mm impulses per mm with a limit frequency of 8.979 Hz and a cab speed of 4 m/s. Encoder type 58B1000ABNG24SC8: Impulse number: 1000 PPR, channels AB and zero impulse, power supply 10-30 VDC, channels push-pull, sensor connector 8-pin radial, 15 m cable (KI 8-67-15 S)	WDGMSUN58B1000ABNH24SC8
System with incremental encoder 58B2500ABNG24SC8: For a accuracy of measurement of 0,1781912 mm or 5,611949412 impulses per mm with a limit frequency of 22.488 Hz and a cab speed of 4 m/s. power supply 10-30 VDC, channels push-pull, sensor connector 8-pin radial, 15 m cable (KI 8-67-15 S)	WDGMSUN58B2500ABNH24SC8
Define your incremental encoder: With the aid of the calculation forms for limit frequency and resolution in the shaft and the data sheet (Page 36 WDG58B) in this catalogue. All variants defined except optional shaft sealed to IP67.	WDGMSUN58BXXXXYYZZSC8 (see page 36 WDG58B)
Absolute variants System with absolute multiturn encoder with synchronous serial interface SSI (RS 422)*: For a accuracy of measurement of 0,054379639 mm or 18,38923583 Steps/mm. * Gray Code: 8192 (13Bit) Steps/revolution and 4096 (12Bit) revolutions. power supply 10-30 VDC, 12 pin. connector, 15 m cable (KD-12-67-15-SSI)	WDGMSUNSL00G1213C100PRL
System with absolute multiturn encoder with CANOpen Lift DSP 417**: For a accuracy of measurement of 0,054379639 mm or 18,38923583 Steps/mm. ** Binary code: 8192 (13Bit) Steps/revolution and max. 4096 (12Bit) revolutions. power supply 10-30 VDC, 9 pin. Sub-D connector, 15 m cable (KD-09-20-15)	WDGMSUNC8B1B1213C100PA9
Comprehensive technical information on absolute encoder types is given in the data sheets on the encoder "WDG absolute" on Pages 75 (SSI) and 79 (CanOpen).	
Silent Move special belt: Calculation of the length: Transport height x 2 + 10 m (extend accordingly for transition points) 20 m 35 m 50 m 60 m 80 m 200 m -drum 500 m -drum Special belt (XXX = figures in metres)	WDGNR020 WDGNR035 WDGNR050 WDGNR060 WDGNR080 WDGNR200 WDGNR500 WDGNRXXX

Guided belt measuring system Silent Move

For heights up to 120 metres



- Quiet and non-slip digital shaft copying for universal mounting on a lift cabin
- Use up to speeds of 4 m/sec.
- Particularly quiet and smooth-running, thanks to special belts and low-noise suspension.
- User-friendly, reliable alternative to switches and sensors.
- Accuracy in the shaft:
 - Incremental encoder WDG up to 0,089 mm/Imp. at 5000 pulses
 - Absolute encoder WDG multiturn, with 8192 steps/turn 13 Bit (25 Bit Multiturn) and 4096 turns 12 Bit, with CANopen-Lift or SSI interface.
- Fast and flexible installation with complete set of mechanical parts.
www.silent-move.de

Noticeably quieter in a noise comparison*:

Conventional System: 92 db

Silent Move: 68 db

*measured directly at the idler pulley at 4 m/sec.

The quiet **Silent Move** belt shaft copying devices are systems which are installed quickly and easily in the shaft.

All installation components required for standard installation to the lift cab rail or on the wall are supplied.



Put together your own system for shaft copying, by selecting an encoder and specifying the length of the special belt.



Incremental encoder
WDG58B



Absolute encoder
WDGSL00G



Self-guiding special belt for exceptionally quiet, non-slip measuring with noise-reducing wheel.

Calculation of the limit frequency:

$$f_g \text{ (Hz)} = \frac{\text{Impulse number of encoder (PPR)} \times \text{max. speed (m/sec)}}{\text{Circumference of pulley (m)}}$$

Example:

$$f_g \text{ (Hz)} = \frac{2500 \text{ PPR} \times 4 \text{ m/sec.}}{0,445478 \text{ m}} = 22.447,8 \text{ Hz}$$

Calculation of resolution in the lifting hole:

$$\text{Res. in pulses/mm} = \frac{\text{Impulse number of encoder (PPR)}}{\text{Circumference of pulley (mm)}}$$

Example:

$$\text{Res. in pulses/mm} = \frac{2500 \text{ PPR}}{445,478 \text{ mm}} = 5,611949412 \text{ l/mm} \hat{=} 0,1781912 \text{ mm}$$

Ordering information: - Guided belt measuring system WDGMSMN:

Description:	Order No.:
Incremental variants System (without encoder): Belt pulley, 2 tensioning rollers, encoder attachment, attachment of the belt in the shaft, tensioning device for the belt and corresponding assembly components. Please order the special belt separately. (see below: Silent Move special belt, calculation of length)	WDGMSMN
System with incremental encoder 58B600ABNG24K3: For a accuracy of measurement of 0,742463333 mm or 1,346867859 impulses per mm with a limit frequency of 5.388 Hz and a cab speed of 4 m/s. Encoder type 58B58B600ABNG24K3: Impulse number: 600 PPR, channels AB and zero impulse, G24: 10-30 VDC, channels push-pull, K3: lead outlet 2 m cable, radial	WDGMSMN58B600ABNG24K3
System with incremental encoder 58B1000ABNG24K3: For a accuracy of measurement of 0,445478 mm or 2,244779765 impulses per mm with a limit frequency of 8979 Hz and a cab speed of 4 m/s. Encoder type 58B1000ABNG24K3: Impulse number: 1.000 I/U, channels AB and zero impulse, G24: 10-30 VDC, channels push-pull, K3: lead outlet 2 m cable, radial	WDGMSMN58B1000ABNG24K3
System with incremental encoder 58B2500ABNG24K3: For a accuracy of measurement of 0,1781912 mm or 5,611949412 impulses per mm with a limit frequency of 22.448 Hz and a cab speed of 4 m/s. Encoder type 58B1000ABNG24K3: Impulse number: 2.500 I/U, channels AB and zero impulse, G24: 10-30 VDC, channels push-pull, K3: lead outlet 2 m cable, radial	WDGMSMN58B2500ABNG24K3
Define your incremental encoder: With the aid of the calculation forms for limit frequency and resolution in the shaft and the data sheet WDG58B (Page 36) in this catalogue. All variants defined except optional shaft sealed to IP67.	WDGMSMN58BXXXXYYZZK3 (see page 36 WDG58B)
Absolute variants System with absolute multiturn encoder with synchronous serial interface SSI (RS 422)*: For a accuracy of measurement of 0,054379639 mm or 18,38923583 Steps/mm. * Gray Code: 8192 (13Bit) Steps/revolution and 4096 (12Bit) revolutions. 10-30 VDC, clamb flansh, cable 2 m, radial	WDGMSMNSL00G1213C100CRW
System with absolute multiturn encoder with CANOpen Lift DSP 417**: For a accuracy of measurement of 0,054379639 mm or 18,38923583 Steps/mm. ** Binary code: 8192 (13Bit) Steps/revolution and max. 4096 (12Bit) revolutions. 10-30 VDC, clamb flansh, cable 2 m, radial	WDGMSMNC8B1B1213C100CRW
Comprehensive technical information on absolute encoder types is given in the data sheets on the encoder "WDG absolute" on Pages 75 (SSI) and 79 (CanOpen).	
Silent Move special belt: Calculation of the length: Transport height x 2 + 10 m (extend accordingly for transition points) 20 m 35 m 50 m 60 m 80 m 200 m-drum 500 m-drum - Special belt (XXX = figures in metres)	WDGNR020 WDGNR035 WDGNR050 WDGNR060 WDGNR080 WDGNR200 WDGNR500 WDGNRXXX

Overview accessories



Torque supports and mounting accessories

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Paguflex-Coupling

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Shaft adapter and adapter sleeves

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Female connectors

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Helical coupling

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Cable assembly with female cable connector

Page 108



Spring disc coupling

Page 104



Spring lever for length determination

Page 111



Bellows-Coupling

Page 105



Measuring wheels

Page 111



Jointed- and Slit-Coupling

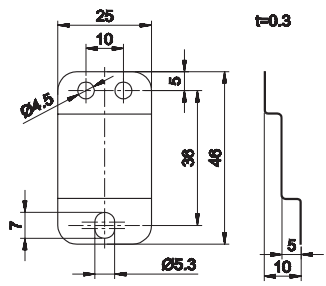
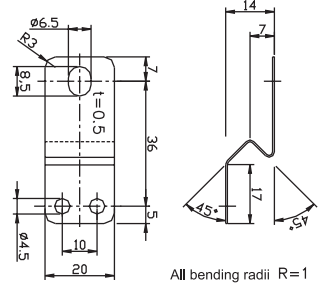
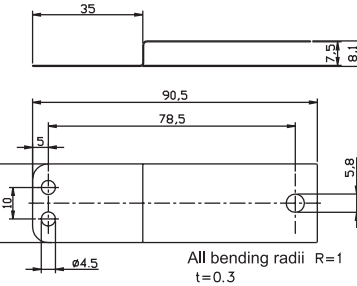
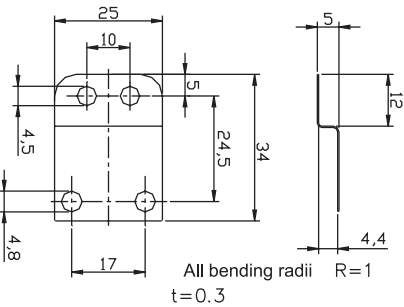
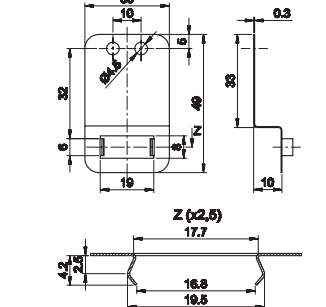
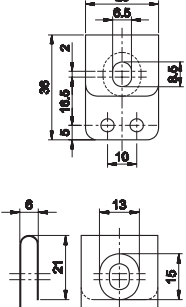
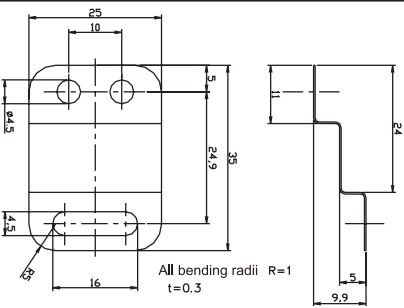
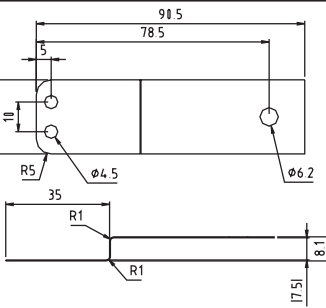
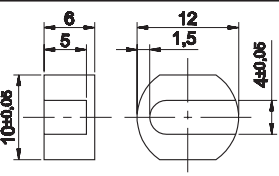
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Torque supports and mounting accessories



* Torque support (WDGDS10001) is provided as standard in the required number with all hollow shaft encoders.

www.wachendorff.de/wdgs-engl

Order No.: WDGDS10001*  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H	Order No.: WDGDS10001B82  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H	Order No.: WDGDS10003  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H
Order No.: WDGDS10004  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H	Order No.: WDGDS10007  Compensation: axial: +/- 0,5 mm radial: +/- 0,2 mm Material: stainless springsteel Operating speed: max. 2.500 rpm (WDG 100H: max. 1600 rpm) Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H Locking attachm. for motor hood protective relay with 10mm hole rasters (8mm hole, 2mm bridge).	Order No.: WDGDS10008  Compensation: axial: +/- 0,4 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H
Order No.: WDGDS10009  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H	Order No.: WDGDS10011  Compensation: axial: +/- 0,8 mm radial: +/- 0,2 mm Material: stainless springsteel Suitable for encoders: WDG 40E, 58H, 58E, 80H, 100H und 145H	Order No.: WDGDS10005 Plastic dog  Compensation: axial: +/- 0,5 mm radial: +/- 1,5 mm Material: Polyamid Operating speed: max. 3000 rpm Suitable for encoders: WDG 58H, WDG 58E (Note: Do not mount the pin to the impact)



QF 40S



QF 58B



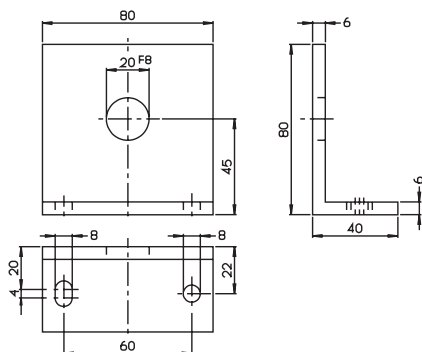
SP-3-00



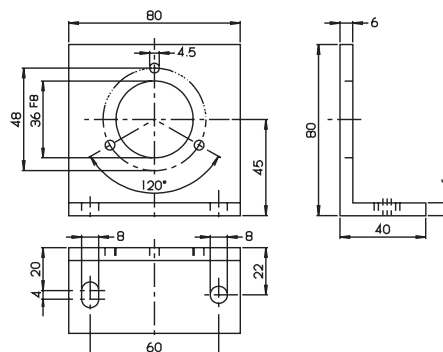
MG 58A

www.wachendorff.de/mounting

Mounting angle

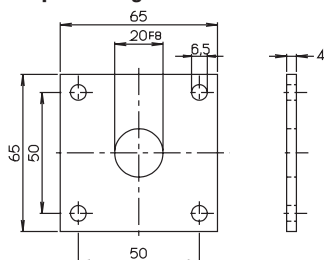


Mounting angle for WDG 40S
Material: Aluminium
Order No.: MW 40S

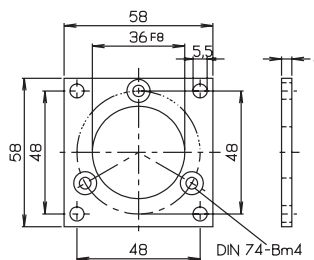


Mounting angle for WDG 58B
Material: Aluminium
Order No.: MW 58B

Square flange

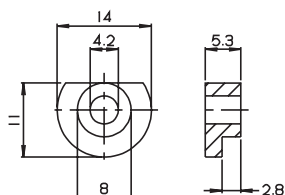


Square flange for WDG 40S
Material: Aluminium
Order No.: QF 40S



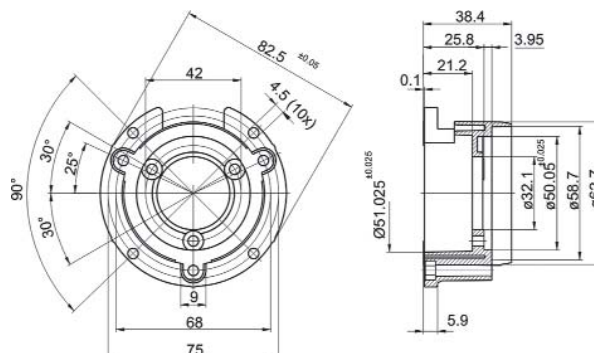
Square flange for WDG 58B
Material: Aluminium
Order No.: QF 58B

Clamping claw



Clamping claw for
WDG 40A, 50B, 58A, 58B,
58C, 58D, 58K
Material: steel
Order No.: SP-3-00
(Set of 3)

Mounting bell



Mounting bell for WDG 58A
Material: Fotron (PPS)
Order No.: MG 58A

Shaft adapters and adapter sleeves

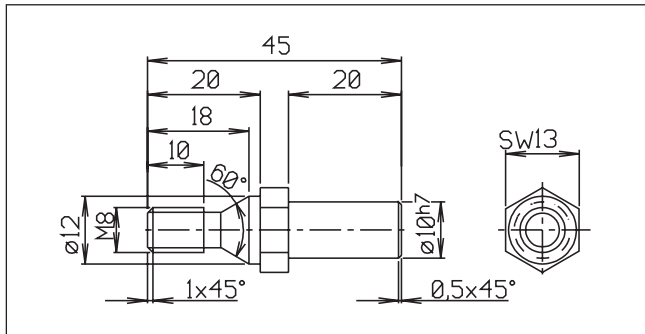


The shaft adapters (steel) are screwed into an appropriate thread on the lift and allow a simple connection via the Paguflex coupling.

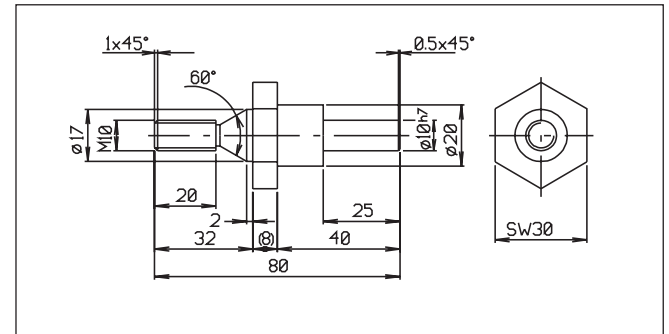
Application field: Installation Kit for frequency-control lifts

The adapter sleeves (aluminium) are used for individual adaptation to different hollow shaft diameters.

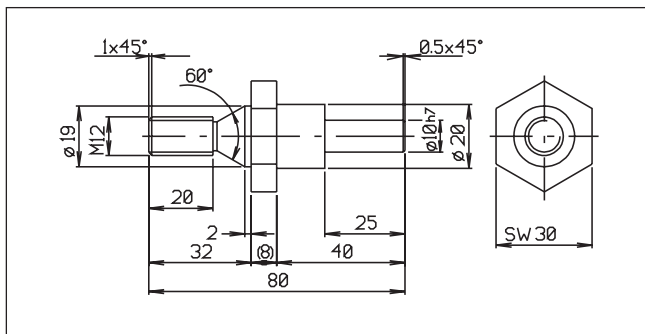
www.wachendorff.de/wdgwa-engl



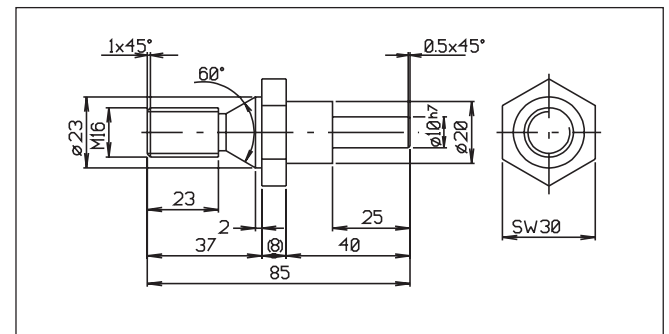
Shaft adapter M08
Order No.: WDGWA10M08



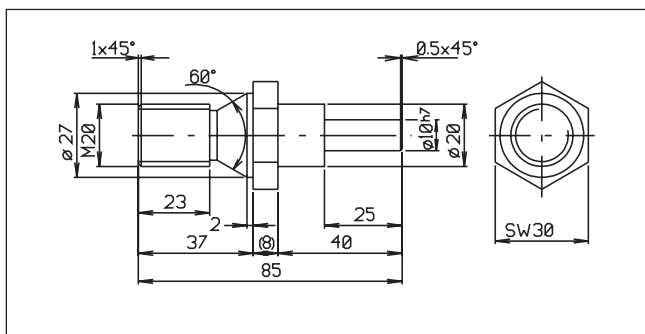
Shaft adapter M10
Order No.: WDGWA10M10



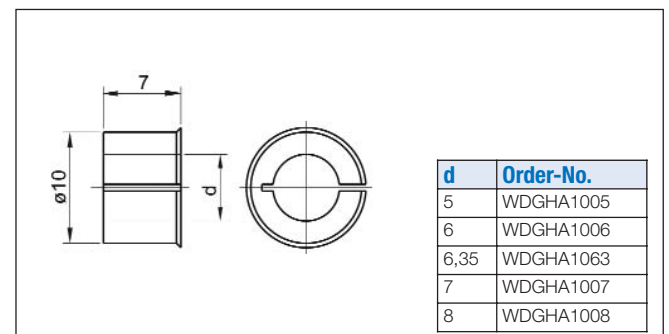
Shaft adapter M12
Order No.: WDGWA10M12



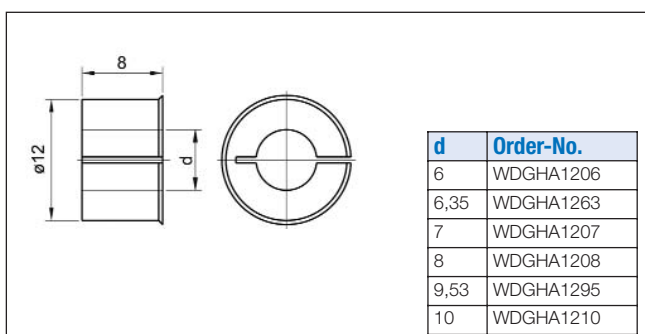
Shaft adapter M16
Order No.: WDGWA10M16



Shaft adapter M20
Order No.: WDGWA10M20



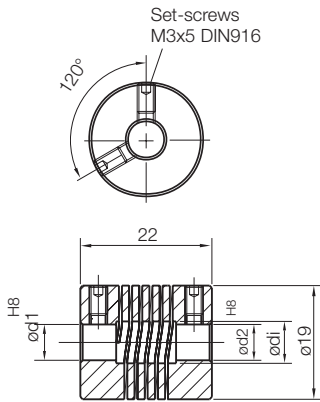
Adapter sleeve for hollow shaft encoder WDG58H/E with
Ø 10 mm hollow shaft, Order No.: WDGHA10XX



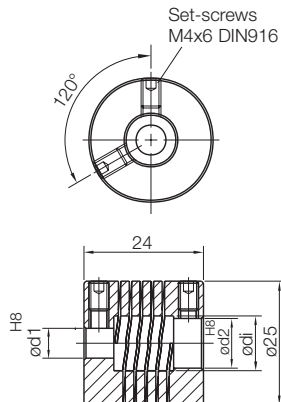
Adapter sleeve for hollow shaft encoder WDG58H/E with
Ø 12 mm hollow shaft, Order No.: WDGHA12XX

Couplings

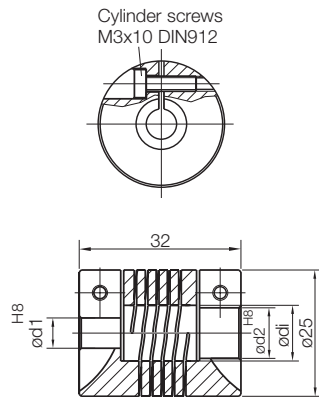
Helical coupling WK22



Helical coupling WK24



Helical coupling WK32



Dimensional specifications in mm

Max. operating speed:
Max. torque:
Max. offset of shafts radial:
Max. offset of shafts axial:
Max. offset of shafts angular:
Torsion spring stiffness:
Radial spring stiffness:
Moment of inertia:
Max. clamping torque:
Weight approx.:
Material:

8.000 min⁻¹
60 Ncm
± 0,25 mm
± 0,4 mm
± 3,5 °
9 Nm/rad
40 N/mm
6,7 gcm²
50 Ncm
13 g
Aluminium,
chromised

8.000 min⁻¹
100 Ncm
± 0,3 mm
± 0,5 mm
± 4 °
20 Nm/rad
60 N/mm
22,2 gcm²
120 Ncm
26 g
Aluminium,
chromised

6.000 min⁻¹
120 Ncm
± 0,35 mm
± 0,5 mm
± 4 °
16 Nm/rad
45 N/mm
29 gcm²
100 Ncm
34 g
Aluminium,
chromised

Ordering information

Description	Order-No.
d1= 6, d2= 6	WK220606

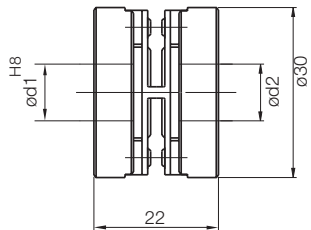
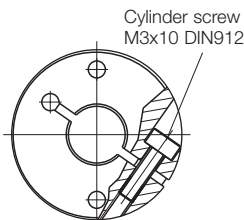
Description	Order-No.
d1= 6, d2= 6	WK240606
d1= 6, d2= 8	WK240608
d1= 6, d2= 10	WK240610
d1= 8, d2= 8	WK240808
d1= 10, d2= 10	WK241010
d1= 12, d2= 12	WK241212

Description	Order-No.
d1= 6, d2= 8	WK320608
d1= 10, d2= 10	WK321010

Max. operating speed:
Max. torque:
Max. offset of shafts radial:
Max. offset of shafts axial:
Max. offset of shafts angular:
Torsion spring stiffness:
Radial spring stiffness:
Moment of inertia:
Max. clamping torque:
Weight approx.:
Material:

12.000 min⁻¹
60 Ncm
± 0,3 mm
± 0,4 mm
± 2,5°
30 Nm/rad
40 N/mm
35 gcm²
80 Ncm
30 g
Flange: Aluminium, anodised,
Membran: Polyamid 6,6,
fiberglass reinforced

Spring disc coupling FSK22

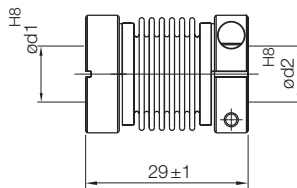
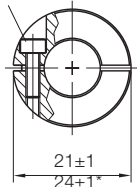


Description	Order-No.
d1= 6, d2= 6	FSK220606
d1= 6, d2= 10	FSK220610
d1= 10, d2= 10	FSK221010
d1= 10, d2= 12	FSK221012
d1= 12, d2= 12	FSK221212

Bellows coupling BK29



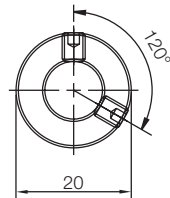
Cylinder screw
M2,5x8 DIN 912



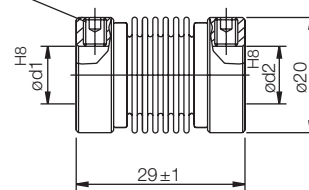
10.000 min-1
80 Ncm
± 0,25 mm / ± 0,30 mm*
± 0,4 mm
± 4 °
150 Nm/rad / 130 Nm/rad*
25 N/mm
9 gcm²
100 Ncm
15 g
Flange: Aluminium, anodised,
Bellows: stainless steel

Description	Order-No.
d1= 6, d2= 6	BK290606
d1= 6, d2= 10	BK290610
d1= 6, d2= 12*	BK290612
d1= 8, d2= 8	BK290808
d1= 10, d2= 10	BK291010
d1= 10, d2= 12*	BK291012
d1= 12, d2= 12*	BK291212

Bellows coupling FB29B



Set-screw
M4x6 DIN916



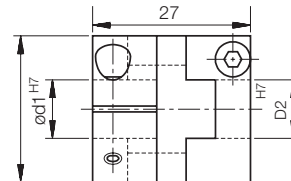
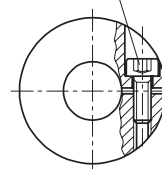
10.000 min-1
80 Ncm
± 0,25 mm
± 0,4 mm
± 4 °
150 Nm/rad
25 N/mm
8 gcm²
150 Ncm
15 g
Flange: Aluminium, anodised,
Bellows: stainless steel

Description	Order-No.
d1= 4, d2= 4	FB29B0404
d1= 4, d2= 6	FB29B0406
d1= 6, d2= 6	FB29B0606
d1= 6, d2= 10	FB29B0610
d1= 6, d2= 12	FB29B0612
d1= 8, d2= 8	FB29B0808
d1= 10, d2= 10	FB29B1010
d1= 10, d2= 12	FB29B1012
d1= 12, d2= 12	FB29B1212

Jointed coupling ST27



M3-DIN912



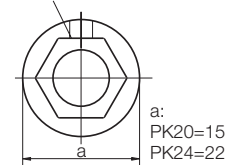
10.000 min-1
80 Ncm
± 0,1 mm
± 0,3 mm
± 0,5°
18 Nm/rad
-
79 gcm²
150 Ncm
28 g
Hub: Aluminium,
Adapter: POM

Description	Order-No.
d1= 6 d2= 6	ST270606
d1=10 d2= 10	ST271010

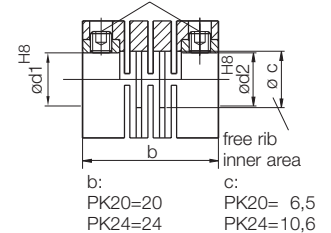
Slit coupling PK20/PK24



Positive locking hub connection



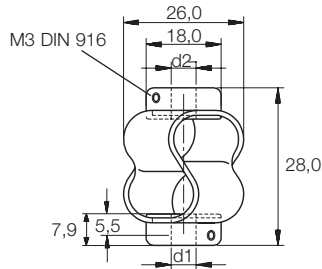
Set-screws M4x4 DIN916



12.000 min-1
20 Ncm / 80 Ncm
± 0,3 mm
± 0,2 mm
± 2,5° / ± 3°
12 Nm/rad / 38 Nm/rad
45 N/mm / 115 N/mm
2 gcm² / 7 gcm²
70 Ncm / 150 Ncm
6 g / 10 g
Polyamid fiberglass reinforced
Hubs: brass

Description	Order-No.
d1= 6, d2= 6	PK200606
d1= 6, d2= 6	PK240606
d1= 6, d2= 8	PK240608
d1= 6, d2= 10	PK240610
d1= 8, d2= 8	PK240808
d1= 8, d2= 10	PK240810
d1= 10, d2= 10	PK241010

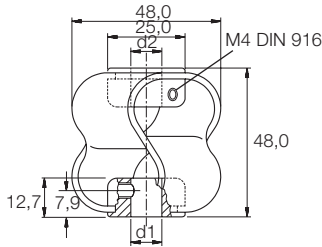
**Paguflex coupling
PF 26, Type 10**



Dimensional specifications in mm

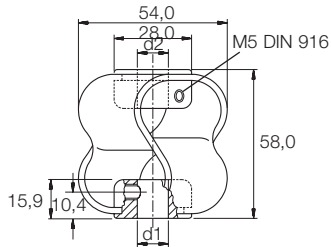
Max. operating speed:	3.000 min ⁻¹
Max. torque:	50 Ncm
Max. offset of shafts radial:	± 2,6 mm
Max. offset of shafts axial:	± 4,5 mm
Max. offset of shafts angular:	± 10°
Torsion spring stiffness:	3,2 Nm /rad
Radial spring stiffness:	11 N/mm
Moment of inertia:	10 gcm ²
Max. clamping torque:	100 Ncm
Weight approx.:	20 g
Material:	corrosion conservation, hub metal, compensating element Hytrel

**Paguflex coupling
PF 48, Type 20**



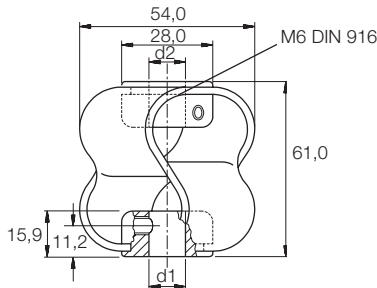
Max. operating speed:	3.000 min ⁻¹
Max. torque:	130 Ncm
Max. offset of shafts radial:	± 3,2 mm
Max. offset of shafts axial:	± 15 mm
Max. offset of shafts angular:	± 15°
Torsion spring stiffness:	7,8 Nm /rad
Radial spring stiffness:	4,5 N/mm
Moment of inertia:	91 gcm ²
Max. clamping torque:	150 Ncm
Weight approx.:	77 g
Material:	corrosion conservation, hub metal, compensating element Hytrel

**Paguflex coupling
PF 54, Type 30**



Max. operating speed:	3.000 min ⁻¹
Max. torque:	500 Ncm
Max. offset of shafts radial:	± 3,2 mm
Max. offset of shafts axial:	17 mm
Max. offset of shafts angular:	± 15°
Torsion spring stiffness:	21 Nm /rad
Radial spring stiffness:	7,7 N/mm
Moment of inertia:	187 gcm ²
Max. clamping torque:	150 Ncm
Weight approx.:	119 g
Material:	corrosion conservation, hub metal, compensating element Hytrel

**Paguflex coupling
PF 61, Type 40**



Max. operating speed:	3.000 min ⁻¹
Max. torque:	1000 Ncm
Max. offset of shafts radial:	± 3,2 mm
Max. offset of shafts axial:	22 mm
Max. offset of shafts angular:	± 15°
Torsion spring stiffness:	23 Nm /rad
Radial spring stiffness:	21 N/mm
Moment of inertia:	165 gcm ²
Max. clamping torque:	150 Ncm
Weight approx.:	108 g
Material:	corrosion conservation, hub metal, compensating element Hytrel

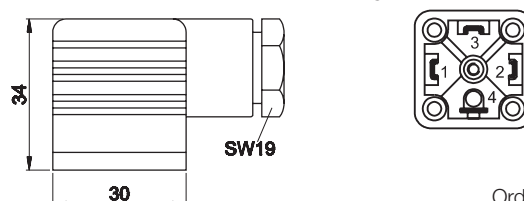
Ordering information

Description	Order-No.
PF26, d1= 6, d2= 6	PF260606
PF26, d1= 8, d2= 8	PF260808
PF48, d1= 10, d2= 10	PF481010
PF48, d1= 10, d2= 12	PF481012
PF54, d1= 12, d2= 12	PF541212
PF54, d1= 16, d2= 16	PF541616
PF61, d1= 14, d2= 14	PF611414

Female connectors

No. of contacts: 4
Termination by: terminal screw
Finish of contact: CuZn
Connection: centre screw
Cable outlet: min. 6 mm, max. 9 mm
Gland bushing: pinch ring
Housing: PA
Protection, only when mated: max. IP65

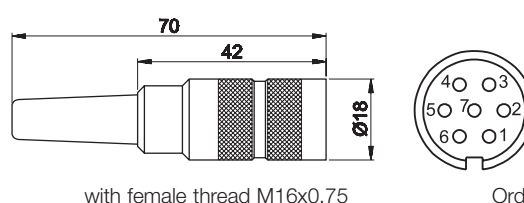
Female cable connector, 4-pin, IP65, angular, suitable for connector S7



Order No.: KVA-4-65

No. of contacts: 7
Termination by: soldering
Finish of contact: silver
Connection: screw connection
Cable outlet: min. 4 mm, max. 6 mm
Gland bushing: through cable clamp
Housing: brass, nickel plated
Protection, only when mated: IP 40

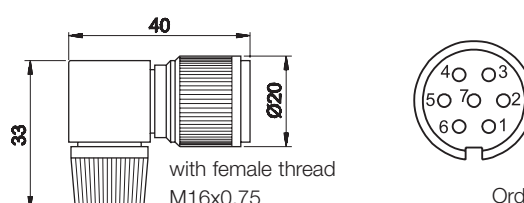
Female cable connector, 7-pin, IP40, straight, suitable for connector S2, S3



Order No.: KD-7-40

No. of contacts: 7
Termination by: soldering
Finish of contact: silver
Connection: screw connection
Cable outlet: min. 4 mm, max. 6 mm
Gland bushing: through pinch ring
Housing: PETP gv
Protection, only when mated: IP 40

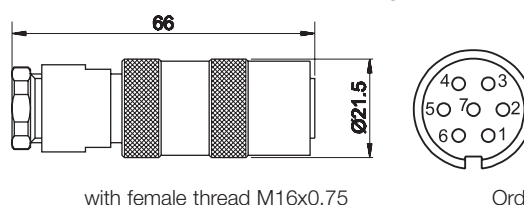
Female cable connector, 7-pin, IP40, angular, suitable for connector S2, S3



Order No.: KDA-7-40

No. of contacts: 7
Termination by: soldering
Finish of contact: silver
Connection: screw connection
Cable outlet: min. 6 mm, max. 8 mm
Gland bushing: through pinch ring
Housing: PETP gv
Protection, only when mated: max. IP67

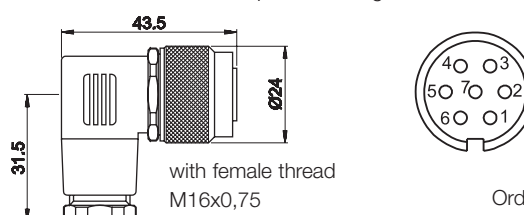
Female cable connector, 7-pin, IP67, straight, suitable for connector S2, S3



Order No.: KD-7-67

No. of contacts: 7
Termination by: soldering
Finish of contact: silver
Connection: screw connection
Cable outlet: min. 6 mm, max. 8 mm
Gland bushing: through pinch ring
Housing: PETP gv
Protection, only when mated: max. IP67

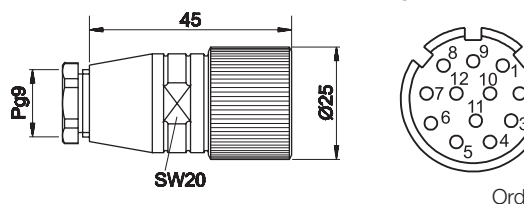
Female cable connector, 7-pin, IP67, angular, suitable for connector S2, S3



Order No.: KDA-7-67

No. of contacts: 12
Termination by: soldering
Finish of contact: gold
Connection: screw connection
Cable outlet: min. 6 mm, max. 8 mm
Gland bushing: PG
Housing: CuZn
Protection, only when mated: max. IP67

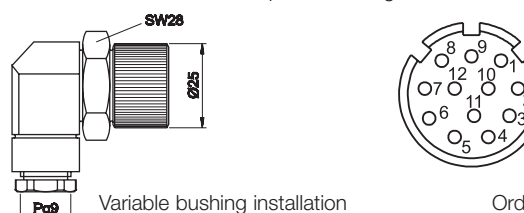
Female cable connector, 12-pin, IP67, straight, suitable for connector S4, S5



Order No.: KD-12-67

No. of contacts: 12
Termination by: soldering
Finish of contact: gold
Connection: screw connection
Cable outlet: min. 4 mm, max. 11 mm
Gland bushing: PG
Housing: CuZn
Protection, only when mated: max. IP67

Female cable connector, 12-pin, IP67, angular, suitable for connector S4, S5

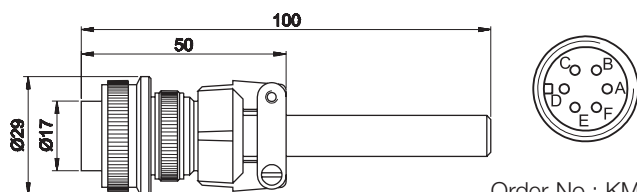


Order No.: KDA-12-67

Female connectors

No. of contacts:	6
Termination by:	soldering
Finish of contact:	silver
Connection:	screw connection
Cable outlet:	min. 8 mm, max. 11 mm
Gland bushing:	cable clamp
Housing:	Aluminium
Protection, only when mated:	IP40

Female cable connector, 6-pin, IP40, straight, suitable for connector S6



Order No.: KM-6-40

www.wachendorff.de/femalecable

Cable assembly with female cable connector

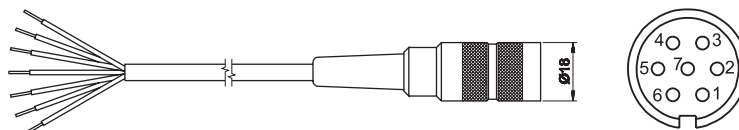
With the original Wachendorff cable you can directly connect an encoder with connector. The colour code of the cable is identical to the one of an encoder with cable. The shield is not connected to the connector housing.

You can order a version with a connected shield, therefore you have to add a 'S' on the standard Order-No.

Ready made cable with female cable connector, straight

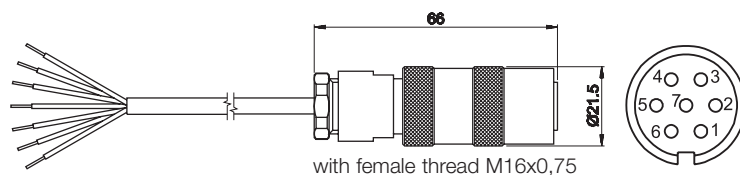
Cable length:	Order No.: Standard	Shield connected
with 2 m cable	KD-7-40-02	KD-7-40-02-S
with 3 m cable	KD-7-40-03	KD-7-40-03-S
with 5 m cable	KD-7-40-05	KD-7-40-05-S
with 10 m cable	KD-7-40-10	KD-7-40-10-S
with 30 m cable	KD-7-40-30	KD-7-40-30-S

Female cable connector, 7-pin, IP40, straight, suitable for connector S2, S3 with cable assembly



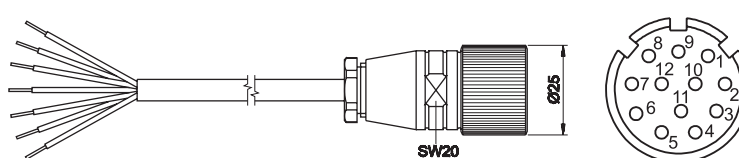
Cable length:	Order No.: Standard
with 2 m cable	KD-7-67-02
with 3 m cable	KD-7-67-03
with 5 m cable	KD-7-67-05
with 10 m cable	KD-7-67-10
with 30 m cable	KD-7-67-30

Female cable connector, 7-pin, IP67, straight, suitable for connector S2, S3 with cable assembly



Cable length:	Order No.: Standard	Shield connected
with 2 m cable	KD-12-67-02	KD-12-67-02-S
with 3 m cable	KD-12-67-03	KD-12-67-03-S
with 5 m cable	KD-12-67-05	KD-12-67-05-S
with 10 m cable	KD-12-67-10	KD-12-67-10-S
with 30 m cable	KD-12-67-30	KD-12-67-30-S

Female cable connector, 12-pin, IP67, straight, suitable for connector S4, S5 with cable assembly

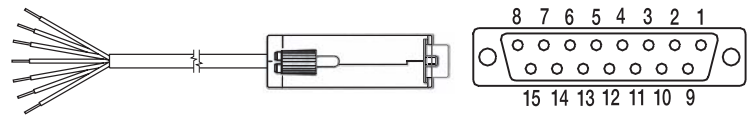


Sinus encoder	Shield connected
with 2 m cable	KD-12-67-SIN-02
with 3 m cable	KD-12-67-SIN-03
with 5 m cable	KD-12-67-SIN-05
with 10 m cable	KD-12-67-SIN-10
with 30 m cable	KD-12-67-SIN-30

Cable length:
**Order No.:
Standard**

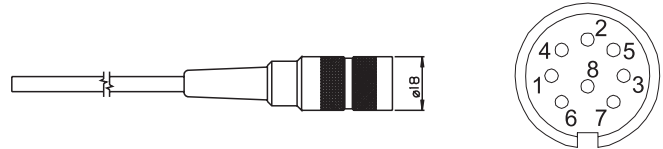
with 2 m cable	KD-SE-15-20-02
with 5 m cable	KD-SE-15-20-05
with 10 m cable	KD-SE-15-20-10

Sub-D socket, 15-pin, IP20, straight, suitable for connector SD15
with cable assembly


Cable length:
**Order No.:
Standard**

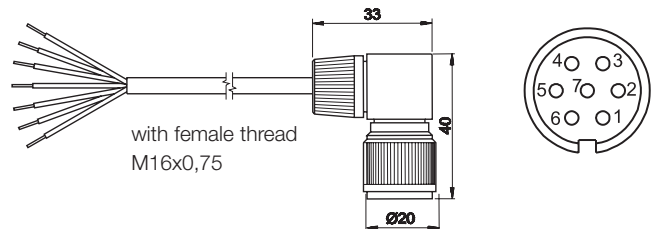
with 15 m cable	KD-8-40-15-CTF	Control Techniques
with 15 m cable	KD-8-40-15-DIZ	Dietz Electronic
with 15 m cable	KD-8-40-15-KEB	KEB
with 15 m cable	KD-8-40-15-LOH	Flender Loher
with 15 m cable	KD-8-40-15-RST	RST
with 15 m cable	KD-8-40-15-LIF	Liftequip
with 15 m cable	KD-8-40-15-ZIL	Ziehl-Abegg

Female cable connector, 8-pin, IP40, straight


Ready made cable with female cable connector, angular
Cable length:
**Order No.:
Standard**

with 2 m cable	KDA-7-40-02
with 3 m cable	KDA-7-40-03
with 5 m cable	KDA-7-40-05
with 10 m cable	KDA-7-40-10
with 30 m cable	KDA-7-40-30

Female cable connector, 7-pin, IP40, angular, suitable for connector S2, S3,
with cable assembly

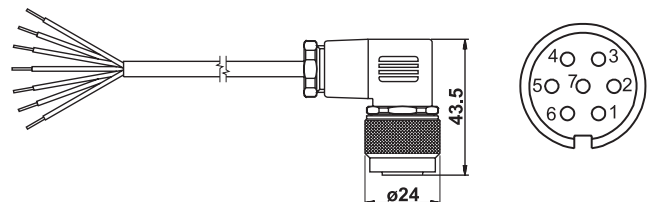

Cable length:
**Order No.:
Standard**

with 2 m cable	KDA-7-67-02
with 3 m cable	KDA-7-67-03
with 5 m cable	KDA-7-67-05
with 10 m cable	KDA-7-67-10

Shield connected

KDA-7-67-02-S
KDA-7-67-03-S
KDA-7-67-05-S
KDA-7-67-10-S

Female cable connector, 7-pin, IP67, angular, suitable for connector S2, S3
with cable assembly

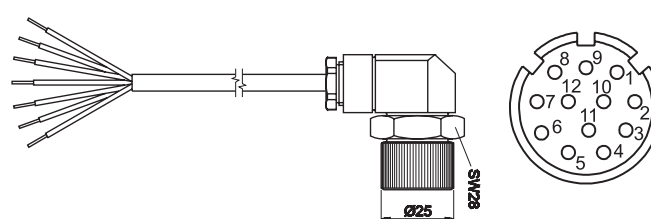

Cable length:
**Order No.:
Standard**

with 2 m cable	KDA-12-67-02
with 3 m cable	KDA-12-67-03
with 5 m cable	KDA-12-67-05
with 10 m cable	KDA-12-67-10
with 30 m cable	KDA-12-67-30

Shield connected

KDA-12-67-02-S
KDA-12-67-03-S
KDA-12-67-05-S
KDA-12-67-10-S
KDA-12-67-30-S

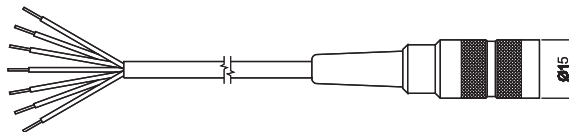
Female cable connector, 12-pin, IP67, angular, suitable for connector S4, S5
with cable assembly

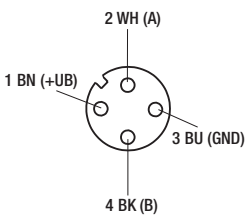
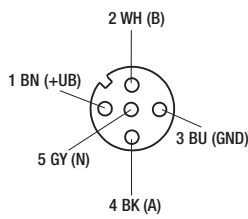
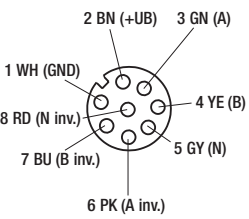
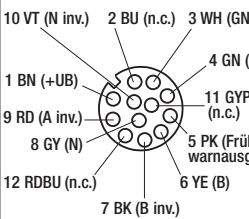

Sinus encoder

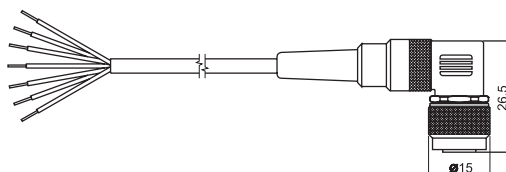
with 2 m cable
with 3 m cable
with 5 m cable
with 10 m cable
with 30 m cable

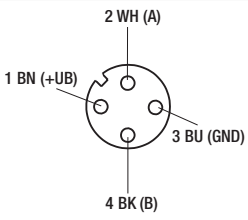
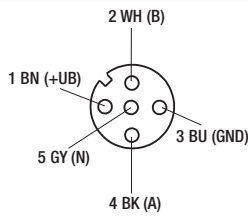
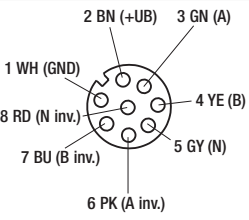
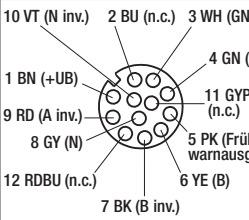
Shield connected

KDA-12-67-SIN-02
KDA-12-67-SIN-03
KDA-12-67-SIN-05
KDA-12-67-SIN-10
KDA-12-67-SIN-30

Ready-made shielded connection cable with female cable connector straight, shield connected, for sensor connector


Suitable for connector:	SB4 and SC4	SB5 and SC5	SB8 and SC8	SB12 and SC12
Assignment:				
No. of contacts:	4-pin	5-pin	8-pin	12-pin
Finish of contact:	metal, CuZn, gold			
Connection:	coupling, M12x1, straight			
Grip:	plastic, TPU, blue			
Union nut:	metal, CuZn, nickel			
Protection rating:	IP67, only to use in screwed status			
Cable length 5 m Order No.:	KI-4-67-05-S	KI-5-67-05-S	KI-8-67-05-S	KI-12-67-05-S
Cable length 10 m Order No.:	KI-4-67-10-S	KI-5-67-10-S	KI-8-67-10-S	KI-12-67-10-S

Ready-made shielded connection cable with right-angle female connector, shield connected, for sensor connector


Suitable for connector:	SB4 and SC4	SB5 and SC5	SB8 and SC8	SB12 and SC12
Assignment:				
No. of contacts:	4-pin	5-pin	8-pin	12-pin
Finish of contact:	metal, CuZn, gold			
Connection:	coupling M12x1, angular			
Grip:	plastic, TPU, blue			
Union nut:	metal, CuZn, nickel			
Protection rating:	IP67, only to use in screwed status			
Cable length 5 m Order No.:	KIA-4-67-05-S	KIA-5-67-05-S	KIA-8-67-05-S	KIA-12-67-05-S
Cable length 10 m Order No.:	KIA-4-67-10-S	KIA-5-67-10-S	KIA-8-67-10-S	KIA-12-67-10-S

Spring lever for length determination



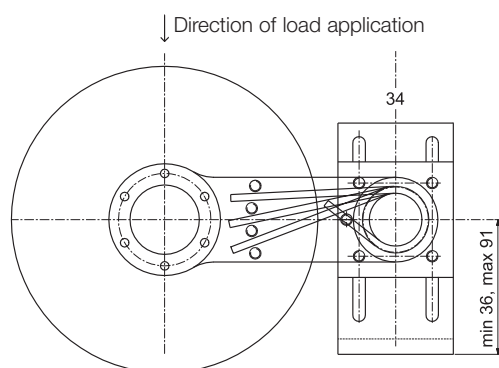
- For encoder WDG 58 B
- Variable installation from below, from above, horizontal, vertical
- Adjustable prestressing force: 20, 25 and 30 N
- Variable running direction on production line
- Can be combined with all measuring wheels of 500 mm circumference
www.wachendorff.de/springlever

Spring travel at tension:

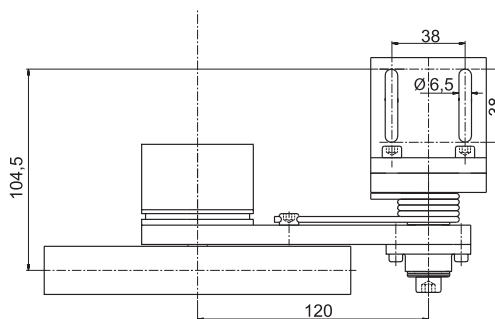
20N = 50° ≈ 91 mm

25N = 45° ≈ 84 mm

30N = 40° ≈ 77 mm



Spring lever, cross section



Ordering information

Description	Order-No.
Load direction anti-clockwise (see fig.)	WDGMA 10000
Load direction clockwise	WDGMA 10002

Measuring wheels

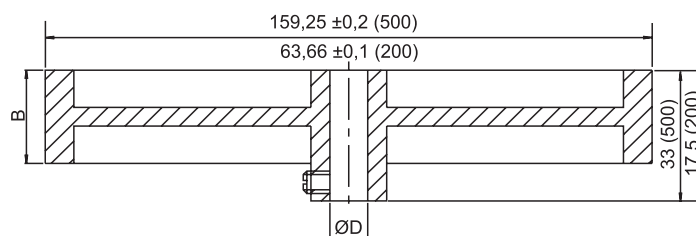


Temperature area:

MR500KH10: -40...+180 °C

MR500KV10: -26...+80 °C

MR500NG10: -30...+90 °C short-time to +120 °C)



Fields of application	Circumference	Surface finish	Hardness Shore A	Wheel body material	Standard bore-hole D	Width B	Weight approx.	Order-No.
Rubber, soft plastics, certain textiles, rough wood	500 mm	Metal, knurled		Aluminium	10 mm	25 mm	350 g	MR500KR10
Wood with even, surface, plastics, wire, greased metals, paper, pasteboard, textile	500 mm	Synthetic (Hytrel, even)	85....90	Plastic	10 mm	25 mm	260 g	MR500KH10
Paper, pasteboard, cable, ungreased metals, raw wood, plastics, wire	500 mm	Synthetic (Vulkollan, even)	90....95	Aluminium	10 mm	25 mm	320 g	MR500KV10
Carpets, coarse textiles	500 mm	Rubber, fluted		Aluminium	10 mm	25 mm	320 g	MR500NG10
Paper, pasteboard, cable, ungreased metal, raw, wood, plastics, textiles, floor coverings	500 mm	Synthetic (Hytrel, chequered)	85....90	Plastic	10 mm	25 mm	260 g	MR500KG10
Rubber, soft plastics, certain textiles, rough wood	200 mm	Metal, knurled		Aluminium	6 mm	12 mm	40 g	MR200KR06
Wood with even, surface, plastics, wire, greased metals	200 mm	Synthetic (Hytrel, even)	85....90	Plastic	6 mm 10 mm	12 mm	35 g	MR200KH06 MR200KH10
Carpets, coarse textiles	200 mm	Rubber, fluted		Aluminium	6 mm 10 mm	12 mm	37 g	MR200NG06 MR200NG10
Paper, pasteboard, cable, ungreased metal, raw wood, plastics, textiles, floor coverings, leather	200 mm	Synthetic (Hytrel, chequered)	85....90	Plastic	6 mm 10 mm	12 mm	35 g	MR200KG06 MR200KG10

Wachendorff Prozesstechnik

Importing electronics for industry

We import high-quality and sophisticated industrial electronics from all over the world for process visualisation and automation. We always let ourselves be guided by customer requirements and the demands of the market. In the selection of our suppliers, we live by the principles of DIN ISO 9001. Our largest supplier is Red Lion Controls of York, Pennsylvania in the USA, who like all our suppliers continually comes up with innovative products and new developments.

- **Visualisation, automation and conversion**
- **Comprehensive and selected range**
- **Technical application advice**



Everything from a single source

We offer complete solutions for all tasks in the fields of measurement, regulation, control and conversion. If you decide on us as your main supplier, you can take full advantage of the learning curve effect. All our equipment follows a standard operating philosophy. This makes commissioning increasingly efficient, and the equipment can be operated reliably after only brief familiarisation.

Overview of evaluation electronics



Intelligent counters, tachometers

Page 114



Programmable total counters / tachometers

Page 116



Compact preselection counter

Page 117



Frequency-analogue converters and speed switch

Page 118



Large-display counter / tachometer (57 or 101 mm LED)

Page 119



Inductive proximity switches

Page 120

Intelligent counters, tachometers PAXI

- 6-figure, 2 independent counters, 1 total/difference/slave display, 1 tachometer
- Max. 34 kHz, adaptable to all common sensors
- Plug-in options: 2 or 4 limit values, analogue output: 0/4-20 mA, 0-10 V, serial interface: RS485, RS232, PROFIBUS-DP, DeviceNet, Modbus
- Position display with analogue output
- Easy programming on the device or by PC
- Min/max value memory, scalable impulse output
- Tachometer with 10-step linearisation
- High protection type IP65, dimensions: 50 x 97 x 104 mm



PAXI picture in original size

red lön

The PAXI industrial counter / tachometer is the perfect multi-function display. Practically all complicated counting tasks can be solved thanks to the two independent counter inputs with counting direction detection, and the third internal counter with addition and subtraction function. The additional tachometer function simultaneously enables monitoring of the revolutions. The device can be quickly and reliably programmed either via the PC or direct using the 5 buttons. The user benefits from the clear user interface, with which he can see all parameters at a glance and easily change them. The devices can also be upgraded at a later time by means of the plug-in options.

Input: NPN, PNP-sensors, CMOS, TTL, potential-free contacts and permanent magnet sensors are accepted. Setting by means of DIP-switches. Bedämpfung auf 50 Hz einstellbar.
Minimum input frequency: 0.01 Hz.
Maximum input frequency: up to 34 kHz (see data sheet).

Display: 6-figure, 14 mm high red LEDs.
Counter: max. +999.999 or -99.999 in static display, max. ±99.999.999 in 2 alternating displays (OF 99) (999999)/(OF -99) (999999).

Tachometer: accuracy: ±0.01%, period permanent measurement, max: 99.999.

Min/Max value: Display: L12345 or H12345.
Slave display: Alphanumeric characters can be sent to counter C over the interface. This displays 6-figures: 0-9, A, b, C, d, E, F, g, H, I, J, L, N, O, P, q, r, S, t, u, y and z, full stop, comma, dash (minus) and empty spaces.

Scaling: All 3 counters and the tachometer can be scaled independently.

Indicators:
A, B, C Counters A, B, C.
Sp1- 4 Output 1- 4 is active.

Operating modes of the two counter inputs:

Both counter inputs are programmed separately. Various functions such as phase discriminate or, 2 independent counters, etc.

Operating modes of 3rd counter C:

As for counter A with independent scaling, counter A + counter B, counter A - counter B.

Remote and slave display: a value sent over the interface can be displayed.

Buttons: the device is programmed and operated from the front side using the 5 push-buttons.

User inputs: 3 programmable inputs are provided. They can be set by jumper for PNP- or NPN-switching. Maximum input 30 VDC.

Impulse output: freely scalable 0.0001-1.0000, NPN O.C. Max. 100 mA, 30 VDC. Pulse/pause ratio: between 25% and 50%.

Power supply: PAXI0000: 85-250 VAC 50/60 Hz, 18 VA.
PAXI0010: 11-36 VDC, 14 W or 24 VAC, ±10 %, 15 VA.

Sensor supply: 12 VDC, ±10%, max. 100 mA, proof against short-circuit.

Protection type: Vproof against spray water from the front and dustproof to IP65.

Housing: dark red, impact-resistant plastic housing. The electronic insert can be removed to the rear. The plug-in cards can be installed very easily.

Dimensions: B 97 mm x H 50 mm x T 104 mm. Switch panel cut-out to DIN: 92 mm x 45 mm. Attachment by installation frame with clamping screws.

Ambient temperature: operation: 0...+50 °C. With all 3 cards fitted: 0...45 °C. Storage: -40...+60 °C.

Programming on the device: programming is possible provided that the programming lock is not activated. All necessary parameters can then be set using the 5 buttons on the front.

Programming with PC software: all project data can be set, administered, copied, registered and transmitted to the PAX device easily in the PC using the Windows software Crimson 2. The starter package consisting of software, RS 232-interface card and PC/PAX connection cable makes the choice of this programming easier.

Output cards: the device can be upgraded very easily with various output cards. Every device can be fitted with a maximum of one interface card, a relay or transistor output card and an analogue output card.

Plug-in interface card:

RS 232, RS 485, DeviceNet, Modbus, PROFIBUS-DP, all programmable.

Plug-in relay output cards:

2 x relay-alternating contact 5 A at 120/240 VAC.
4 x closer relays 3 A at 250 VAC or 30 VDC (ohmic load).

Plug-in transistor output cards:

1. 4xNPN-OC transistors: Max. 100 mA at $V_{sat} = 0.7V$, $V_{max} 30 V$.
2. 4xPNP-OC transistors: Internal power supply: 24 VDC, $\pm 10\%$, max. 30 mA all 4 transistors.
External power supply: 30 VDC max., 100 mA for each individual transistor

Plug-in analogue output card:

Output signal selectable: 0-20 mA, 4-20 mA, 0-10 VDC. Digitally scalable, offset. Resolution 1/3500.

**2 independent counters
accept a variety of
signal sources**

Ordering information

Description	Order-No.
PAXI counter/tachometer/remote display with	
- 85 - 250 VAC power supply	PAXI0000
- 11 - 36 VDC/24 VAC power supply	PAXI0010
Plug-in interface card RS 485, (terminal rail)	PAXCDC10
Plug-in interface card RS 485, 2xRJ11	PAXCDC1C
Plug-in interface card RS 232, (terminal rail)	PAXCDC20
Plug-in interface card RS 232 mit SUBD - connector, 9-pin	PAXCDC2C
Plug-in interface card DeviceNet	PAXCDC30
Plug-in interface card Modbus	PAXCDC40
Plug-in interface card , PROFIBUS-DP	PAXCDC50
Plug-in analogue output card	PAXCDL10
Plug-in transistor output card	PAXCDS10
2 x converters	
Plug-in transistor output card	PAXCDS20
4 x closers	
Plug-in transistor output card, 4 x NPN	PAXCDS30
Plug-in transistor output card, 4 x PNP	PAXCDS40
Programming software Crimson 2	SFCRM200
Starter package for PAX on the PC, Includes the software SFCRM200, one RS 232 interface card and a PC/PAX connection cable	PAXOEMS
Starter package for PAX on the PC, via USB Includes the software SFCRM200, an RS232 interface card and an RS232-USB converter cable (only COM1-4).	PAXOEMS1

Black: ex stock, grey: Delivery time approx. 3 weeks.

Programmable total counter/tachometer CUB5

- Large operating temperature range, -35 to +75 °C
- 2 counters and a tachometer in one device
- 2 adjustable counting directions
- 8-figure, 12 mm high bright LCD display
- Protection type IP65
- Easily programmable via buttons on the front or PC
- Phase discriminator up to 4x resolution
- Optional relay output card
- Optional serial interface card RS232 or RS485

Option: relay output card
converter, 1 A at 30 VDC or 0,3 A at 125 VAC.

Option: Serial interface
RS485: Baud rate 300 - 19.200, unisulated, multi-point RS232: Baud rate 300 - 19.200, half-duplex, unisulated

Ambient temperature: standard-LCD: -35°C...+75°C background lighting LCD: -35°C...+35/75°C (depending on display intensity) storage: -35°C...+85°C.



CUB5 picture in original size

red lion

The CUB5 is a cost-effective display for 2 counting values and a speed. It can be used for example as a position, revolutions, pieces, speed or flow display and is ready for operation immediately thanks to its easy programming. Thanks to the optional relay output card, it also offers a cost-effective solution as a limiter for a wide range of applications. An optional serial interface (RS232 or RS485) is also available for fast programming using the software Crimson 2. Data can also be read out easily via the interface. In addition to the standard LCD display, a two-colour backlit LCD display is also available.

Display: 8-figure, 12 mm high bright LCD, standard or with red/green and switchable background lighting. The intensity of the background lighting can be adjusted in 5 steps.

Buttons: the CUB5 is programmed using the 2 buttons on the front. The buttons can be locked, and can also be used as reset buttons.

Inputs: scalable counter inputs A and B: Vmax = +28 V. Input A can be adapted for use with all common sensors by means of DIP-switches.

Counter input frequency:
- Up to 20 kHz

Counter operating modes:
- Phase discriminator
- Difference/total
- Upwards/downwards counting

Tachometer: period permanent measurement with min. input frequency = 0.01 Hz, max. 20 kHz. Accuracy: ±0.01 %.

User inputs: USER INPUT: Low-Aktiv, Verzögerungszeit: 50 ms. Programmierbare Funktion (siehe Programmierung). VIL max= 1,0 V, VIHmin = +2,4 V , Vmax = +28 V.

Data storage: EEPROM, minimum storage time 10 years.

Power supply: 9-28 VDC, standard LCD: max. 30 mA, with background lighting max. 125 mA. 230 VAC power supply with direct screw-fitting power supply unit (see accessories).

Protection type: proof against spray water from the front and dustproof to IP65.

Housing: plastic housing B 75 mm x H 39 mm x T 44 mm. switch panel cut-out: DIN 68 mm x 33 mm.

Ordering information

Description	Order-No.
Counter and tachometer CUB5, 8-figure, 12 mm high LCD, IP65 - Standard-LCD - red-green backlit LCD	CUB5R000 CUB5B000
Accessories Power supply unit 85-250 VAC/12 VDC, 400 mA	MLPS1000
Option: relay output card converter, 1 A at 30 VDC, 0,3 A at 125 VAC	CUB5RLY0
Option: Serial interface RS485	CUB5COM1
Option: Serial interface RS232	CUB5COM2
Developer's package: interface card RS232, Programming software, connection cable to PC	CUB5OEMS
Programming software Crimson 2	SFCRM200

Compact pre-selection counter C48C

- Transistor and relay outputs
- As stack counter with 3rd output
- Easy programming
- Display actual value, pre-selections, switch conditions
- Easy operation with 4 buttons
- DIN cut-out 45 x 45 mm
- IP65 from front side
- Programming on the device or optionally with Windows software



C48C picture in original size **red** **ipn**

The C48C shows all information on the condition of the machine clearly on the display. The device is available as a pre-selection or stack counter (C48CB). The current counter value and stack or pre-selection value can be shown simultaneously on the display. The C48C offers 18 different counter operating modes such as forwards counter, forwards/backwards counter, stack counter or phase discriminator, enabling it to be used for a wide range of applications

Display: 2 x 6-figure standard or red/green backlit LCD. Upper display 7.5 mm high and lower display 5 mm high. Indicators for the switching condition of the outputs and identification of pre-selections.

Buttons: the devices is programmed and operated with the aid of 4 buttons. All buttons can be selectively locked.

Inputs A + B: the sensor inputs can be adapted for use with all common sensors (incremental encoder, CMOS, TTL, permanent magnet, NPN, PNP, max. 30 V) by means of DIP-switches.

Max. input frequency: 12.4 kHz, depending on factor and programming. (see tables in data sheet).

User input 1 and 2: the 2 user inputs can be optionally activated against earth or V+ by means of buttons, switches, relays or transistors (setting by jumper). User input 2 not available with stack counter with relay.

Outputs: Transistor: PNP-OC ISRC = 100 mA, V_{OH} = 12 VDC, ±15% (with power supply from C48 C); V_{OH} = 13...30 VDC (with external power supply). Relay: closer, 250 VAC/30, VDC/5A, min. 100,000 switching cycles, wiping signal time: 0.01 – 99.99 s.

Scalable impulse output (Option): freely scalable output frequency depending on input frequency. Scaling factor: 0.00001-1,0000.

Programming: programming and operation is carried out with menu guidance by means of the buttons on the front. In devices with a serial interface, the Windows software RLCPro can also be used.

RS485 (Option): 32 devices can be networked, Baud rate: 1200-9600.

Power supply::

C48CXX0X: 85-250 VAC, 9 V_{Amax}/ 11-14 VDC.

C48CXX1X: 18-36 VDC; 5.5 W/24 VAC (±10 %).

Sensor supply: 12 VDC (±15%)/100 mA.

Protection type: proof against spray water from the front and dustproof to IP65.

Housing: flame-resistant and scratchproof black plastic. The housing is mounted in the switch panel. The housing front and electronic circuit boards can be removed. The devices can be installed next to each other.

Dimensions: B 50 mm x H 50 mm x T 106 mm. switch panel cut-out DIN B 45 x H 45 mm.

Ambient temperature: operation: 0...+50 °C. storage: -40...+70 °C.

Additional characteristics (please request)

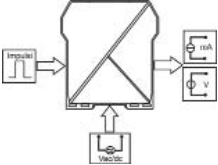
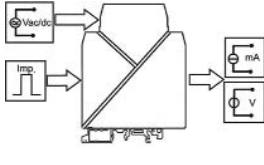
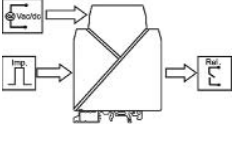
1. Devices with 2 pre-selections or with stack counters are also available with NPN open-collector transistor outputs (30 VDC/100 mA).

Ordering information

Description	Standard	Backlit pre-selection LCD	Pre-selections	PNP output	Relay output	Scalable impulse output	RS485	Order-No. for 85-250 VAC 11-14 VDC	Order-No. for 18-36 VDC/24 VAC
C48CS	x	x	1	x	x			C48CS004	C48CS014
			x	1	x	x		C48CS104	C48CS114
C48CD	x	2	x	x				C48CD002	C48CD012
	x	2	x		x		x	C48CD007	C48CD017
		x	2	x				C48CD101	C48CD111
		x	2	x			x	C48CD106	C48CD116
		x	2	x	x			C48CD102	C48CD112
		x	2	x	x	x		C48CD107	C48CD117
C48CP	x	2	x	x		x		C48CP001	C48CP011
		x	2	x		x		C48CP101	C48CP111
C48CB	x	3	1	2				C48CB004	C48CB014
	x	3	1	2			x	C48CB009	C48CB019
	x	3	3					C48CB001	C48CB011
		x	3	1	2			C48CB104	C48CB114
		x	3	1	2		x	C48CB109	C48CB119
		x	3	3				C48CB101	C48CB111
Accessories									
Programming software								SFC48100	SFC48100
RLC Pro for Windows									
Replacement relay board for devices with									
1 pre-selection								RBC48002	RBC48002
2 pre-selections								RBC48003	RBC48003
3 pre-selections								RBC48005	RBC48005

Black: ex stock, grey: Delivery time approx. 3 weeks.

Frequency-analogue converter and speed switch

	Frequency-analogue converter	Frequency-analogue converter	Speed switch
	 WZ111	 IFMA	 IFMR
			
Input channels	1	1	1
Impulse input	1 to 10 kHz via NPN, PNP, TTL, Namur, Hall-effect and reed sensors up to 24V.	From 1 Hz to 25 kHz via NPN, PNP, TTL, relay, CMOS and permanent magnet sensors up to ±90V.	
Output channels	1	1	1
Output voltage (V)	4 output ranges 0/1..5V, 0/2..10V Min output impedance >2.5KOhm	2 output ranges 0..5/10V Min. output impedance >1kOhm	-
Output current (mA)	2 output ranges 0/4..20mA Max output impedance 600Ohm	2 output ranges 0/4..20mA output impedance <500Ohm	-
Relay output	-		Alternating relay, 5A at 240VAC or 28VDC (ohmic load)
Accuracy	0.3% of output range	0.1% of output range, 0.2% for the range 0-5VDC	0.1% of output range
Switches	DIP-switches and potentiometer	DIP-switches and rotary switches	DIP-switches and rotary switches
Power supply	19..40 VDC 19..28 VAC; (50..60 Hz)	9..32 VDC or 85..250 VAC; (50..60 Hz)	
Insulation & protection	1500 VAC (in all directions)	2.2 KV between power supply and input / output. 500 V between input and output for one minute.	
Reaction time	250 ms	5 ms	
Operating temperature	0..50 °C	0..50 °C	0..50 °C
Dimensions (WxHxD)	17,5 x 100 x 112 mm	28 x 79 x 107 mm	
Weight	approx. 200g	approx. 170g	
Manufacturer	Seneca	Red Lion Controls	
Order number	WZ111000	IFMA0065 IFMA0035	IFMR0066 IFMR0036
		Power supply: 85-250 VAC 9-32 VDC	Power supply: 85..250 VAC 9..32 VDC

Large-display counter/tachometer (57 or 101 mm LED) LD



The industrial large display LD can be used as a single counter or as a double counter with tachometer function. To the optional equipment with a relay output and serial interface, the display is very flexible in use, and can be used for a wide range of applications. The 4-figure display is used as a simple parts counter and with 57 mm or 101 mm high characters can be read from up to 50 m away. The 6-figure display is also available with two different number heights, and can also be used as a 2-way counter and tachometer. A wide range of measuring tasks can be carried out thanks to the 8 different counter operating modes and free scaling. The light, all-round IP65 housing also allows the device to be used in rough industrial environments. The device can be quickly and reliably programmed either via the PC or direct using the 3 buttons.

Input: NPN, PNP sensors, CMOS, TTL, potential-free contacts and permanent magnet sensors are accepted. Setting by means of DIP-switches. Adjustable damping to 50 Hz.

Operating modes:

- 4-figure large display: simple parts counter (LDx00400)
- 6-figure large display: simple parts counter (LDx00600)
- 6-figure large display: 2-way counter/tachometer, addition or subtraction with direction recognition, difference, total, phase discriminator x1, x2, x4 can be set (LDx006P0).

Limit frequency: LD200400, LD200600, LD400400 und LD400600: 35 kHz max. LD2006P0 and LD4006P0:

- Counter with direction recognition: 35 kHz
- Counter/tachometer: 25 kHz
- Phase discriminator x1/x2: 22 kHz
- Phase discriminator x4, 2 counters: 16 kHz
- 2 counters with addition/subtraction: 20 kHz

The specified limit frequency only applies if the DIP-switches are set to high frequency.

Tachometer (LD2006P0 und LD4006P0): 0-99999, minimum input frequency 0.01 Hz, accuracy $\pm 0.01\%$, period permanent measurement.

Display (dimmissible):

- 4-figure, 57 or 101 mm high red LED (LD2xxxxxx)
- 6-figure, 57 or 101 mm high red LED (LD4xxxxxx)

Scaling (LD2006P0 und LD4006P0): both counters and the tachometer can be scaled independently. Floating decimal point setting.

Sensor supply: 11-16 VDC, max. 50 mA, proof against short-circuit. Only possible on connection of the display to 230 VAC.

Buttons: (LD2006P0 und LD4006P0) the device is programmed and operated from the front side using the 3 push-buttons.

User input: 1 programmable input is provided. It can be set by jumper for PNP- or NPN-switching. Maximum input 28 VDC.

Reaction times: max. 5 ms typ., after max. 100 ms a new flank on the user input is recognised.

Relay output (LD2006P0 und LD4006P0): alternating relay type C, 5 A at 120/240 VAC.

Serial interface (LD2006P0 und LD4006P0):

RS485: 300 to 19200 Baud, address 0 to 99, multipoint.
RS232: 300 to 19200 Baud, semi-duplex.

- 4- or 6-figure, red, 7-segment LED display
- Counter- and tachometer display
- Optional relay output and optional serial interface
- Easy programming on the device via the buttons on the front
- Light, all-round aluminium housing
- High protection type IP 65

Power supply:

AC power supply:
85 to 250 VAC 50/60 Hz, 14 VA; output: 11 to 16 VDC, max. 50 mA

DC power supply:
11 to 16 VDC, 400 mA max., 7 W

Protection type: all-around IP 65.

Housing: black painted aluminium housing with attachment brackets for wall or ceiling installation.

Dimensions:

LD2004xx:	B 304,8 mm x H 101,6 mm x T 57,2 mm
LD2006xx:	B 406,4 mm x H 101,6 mm x T 57,2 mm
LD4004xx:	B 508,0 mm x H 200,0 mm x T 57,2 mm
LD4006xx:	B 660,4 mm x H 200,0 mm x T 57,2 mm

Connection: internal removable terminal rail blocks.

Relative air humidity: max. 85% r.h., non-condensing.

Ambient temperature: operation: 0...+50 °C. storage: -40...+70 °C.

Electromagnetic compatibility CEE conformity:

- Interference emission: EN 55011 Class B
- Interference resistance:
 - EN 61000-4-2 Criterion A, 4 kV contact discharging, 8 kV air discharging
 - EN 61000-4-3 Criterion A, 10 V/m
 - EN 61000-4-4 Criterion A, 2 kV output, 1 kV Signal
 - EN 61000-4-5 Criterion A, 1 kV L-L, 2 kV L&N-E output
 - EN 61000-4-6 Criterion A, 3 V/rms

Weight:

LD2004xx:	1,59 kg
LD2006xx:	2,04 kg
LD4004xx:	3,63 kg
LD4006xx:	4,76 kg

Contents: device, attachment materials, seal, operating instructions.

Operation: (LD2006P0 und LD4006P0)

The clear user interface with the display of all relevant values and the indicators enable rapid operation. The devices operated by means of the 3 buttons on the front. During programming, the user determines which displays and entries will be possible after activation of the programming lock, and which will remain locked. The counter conditions of counters A, B or the tachometer can be displayed by pressing the SEL button.

Programming on the device: (LD2006P0 und LD4006P0)

The device can be programmed provided that the input of the programming lock has not been activated. All necessary parameters can then be set with the aid of the 3 buttons on the front. The programming is organised in individual sections. The user is guided through the entry of the individual parameters by codes.

Ordering information

Description	Order-No.
57 mm Number height, 4-stellig, counter	LD200400
57 mm Number height, 6-stellig, counter	LD200600
57 mm Number height, 6-stellig, counter/tachometer, Relaisausgang, RS232/485	LD2006P0
101 mm Number height, 4-stellig, counter	LD400400
101 mm Number height, 6-stellig, counter	LD400600
101 mm Number height, 6-stellig, counter/tachometer, Relay output, RS232/485	LD4006P0

Proximity switches

- Outstanding quality at affordable prices
- Comprehensive range of types
- Large Operating distances
- Extremely resistant
- Protected against short-circuits and faulty connection



A selection from our large sensor range is given below.
Contact us for a quotation for your sensor.

Inductive proximity switches, all metal

- Type: M8, M12, M18, M30; cable or connector
- Operating distance of 0.8 to 20 mm
- Output function: NPN, PNP, AC, AC/DC
- Power supply:
DC: 10-30, 55, 60V; 5-36V; / 200mA
AC: 20-250V / 400mA;
AC/DC: 20-250V / 200mA
- Shielded or unshielded
- Housing: stainless steel from single casting



Ordering information

Description	Order-No.
Power supply: 10-30 VDC, PNP, shielded, stainless steel: M8, 2 mm operating distance, 2 m cable M8, 2 mm operating distance, 3-pin connector M12, 4 mm operating distance, 2 m cable M12, 4 mm operating distance, 4-pin connector	P1C1F0802PO3A2 P1C1F0802POPA3 P1C1F1204PO3A2 P1C1F1204NOEA4

Inductive proximity switches

- Type: Ø3 mm, Ø4 mm, M4, M5, Ø6.5, M8, M12, M18, M30
- Operating distance of 0.8 to 40 mm
- Output function: NPN, PNP, AC, AC/DC
Namur or two-wire conductor
- Power supply:
DC: 10-30, 55, 60V; 5-36V; / 200mA
Namur: 6-12V/>2.2mA (OFF), <1.1mA (ON)
AC: 20-250V / 400mA
AC/DC: 20-250V / 200mA
- Shielded or unshielded
- Housing: stainless steel or nickel-plated brass



Ordering instructions

Description	Order-No.
Power supply: 10-30 VDC, PNP, shielded, 2 m cable: M8, 2 mm operating distance, stainless steel M8, 3 mm operating distance, stainless steel M12, 4 mm operating distance, nickel-plated brass M12, 6 mm operating distance, nickel-plated brass	P1C1S0802PO3A2 P1C1S0803PO3A2 P1C1B1204PO3A2 P1C1B1206PO3A2



Analog inductive proximity switches

- Type: M8, M12, M18, M30
- Cable or connector
- Operating distance of 0.1 to 14 mm
- Output types:
 - Current, voltage or current + voltage
- Current/resistance: 4-20mA/2000 Ω
- Voltage/resistance: 0-10V/ ≥ 4.7 K Ω
- Shielded or unshielded
- Housing: nickel-plated brass or plastic

Ordering instructions

Description	Order-No.
Power supply: 18-30 VDC, 4-20 mA, shielded, nickel-plated brass, 2 m cable:	
M8, 0,1-2,5 mm operating distance	P5C2B0825GI3A2
M12, 0,1-4 mm operating distance	P5C2B1204GI3A2
M18, 10-30 VDC, 1-7 mm operating distance	P5C2B1807GI3A2



Inductive proximity switches Welding field-immune types

- Type: $\varnothing 3$ mm, $\varnothing 4$ mm, M4, M5, $\varnothing 6.5$ mm, M8, M12, M18, M30
- Cable or connector
- Operating distance of 0.8 to 40 mm
- Output function: NPN, PNP, AC, AC/DC
- Power supply:
 - DC: 10-30V / 200mA
 - AC: 20-250V / 400mA
 - AC/DC: 20-250V / 200mA
- Shielded or unshielded
- Housing: stainless steel



Ordering instructions

Description	Order-No.
Power supply: 10-30 VDC, PNP, shielded, PTFE-coated brass:	
M8, 1 mm operating distance, 2 m cable	W1C1B0801PO3A2
M8, 1 mm operating distance, 3-pin unshielded	W1C1B0801POPA3
M12, 2 mm operating distance, 2 m cable	W1C1B1202PO3A2
M12, 2 mm operating distance, 4-pin connector	W1C1B1202POEA4

General technical data – Incremental encoders

Optical principle

All the WDG incremental encoders in this catalogue are based on non-contact optical scanning. The light from a high-performance LED is parallel aligned by means of a lens and shines through a lens aperture disc and a pulse disc. The aperture disc is integrated in the flange. The pulse disc is mounted on the stainless-steel shaft that is free from backlash thanks to its special bearings. If the shaft is rotated, then the combination of aperture and pulse discs cause finely defined fields to open and close. Either light is let through the grid or not. This layout means two signals are detected, phase-shifted by 90°, as well as a zero (index) pulse. The difference between light and dark is detected by receiving transistors, working differentially, mounted on the PCB on the opposite side. From this the electronic circuitry preprocesses high-precision signals and then amplifies them into industrially usable pulse-forms, for example sinusoidal or square-wave, HTL or TTL and their inverted signals.

Our WDG encoders are finely-tuned measuring systems, made up of a combination of precision mechanics, a compact optical segment and high-performance electronics.

Optics

Light source:	IR - LED
Service life:	typ. 100,000 hours. WDG58T: 80,000 hours.
Scanning:	differential

Accuracy incremental encoders

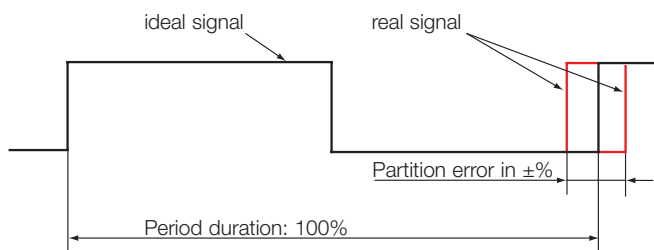
Shaft encoders have three defined types of accuracy. In each case the accuracy is given as a % of the pulse length, which consists of a pulse and a pause.

The partition error is defined as the deviation of any pulse edge from its exact geometric position and as standard is a max 12%.

The pulse/pause ratio describes the ratio of the pulse/pause deviation from the pulse length. The accuracy value has been given for each encoder and as standard amounts to a max $\pm 7.5\%$.

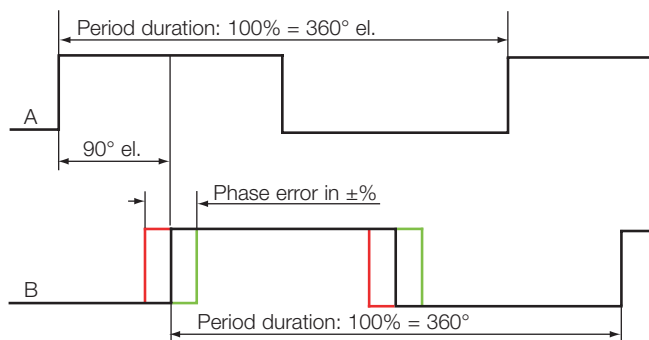
The phase displacement describes the accuracy of two successive edges. The accuracy is given for each encoder and as standard amounts to a max. 7.5% of a pulse length..

Partition error:



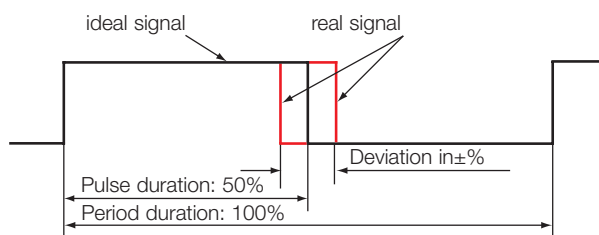
Partition: max. 12%

Phase offset:



Phase offset: 90° $\pm$ max. 7,5%

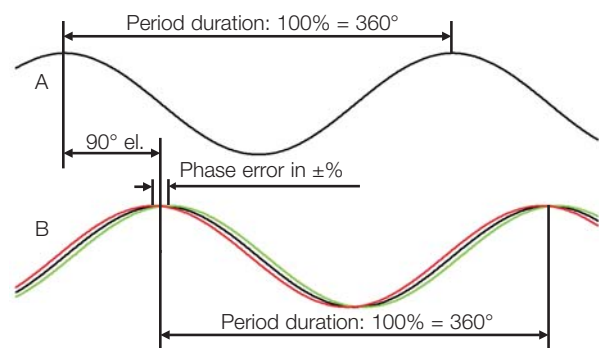
Pulse-/Pause-ratio



Pulse-/Pause-ratio: 50% $\pm$ max. 7%

Accuracy sinus encoders

Phase offset:



Phase offset: 90° $\pm$ max. 7,5%

Environmental Data

Measured mounted and housing grounded.

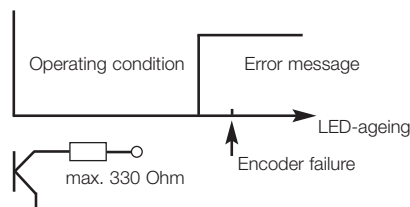
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
Vibration (IEC 68-2-6):	50m/s ² (10-2000 Hz)
Shock (IEC 68-2-27):	1000m/s ² (6 ms)

Design according to:

DIN VDE 0160

Early Warning Output

Each shaft encoder is supplied with an early warning output, which indicates the impending failure of the encoder signals. This warning is triggered when the LED intensity is about 10% of its original value. The encoder will still function for more than 1000 hours and the encoder can therefore be changed at a scheduled maintenance interval.

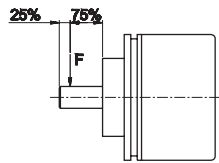


Output switching:

With early warning output: G24, G05, I24, I05, 245, SIN
Without early warning output: H24, H05, R24, R05, R30

Mechanically rugged

All encoders have double and clearance-free shaft bearings with the maximum possible distance between the bearings, thus obtaining maximum long-term load capacity.



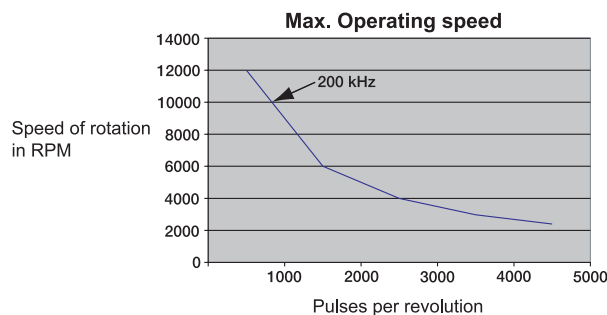
The bearings are treated with a special grease able to withstand extreme temperatures, high speeds and loads, as well as constant operation in reverse. The grease remains stable over a long period of time. The indicated radial-bearing load relates to the point F of the applied force. The useful life of the bearings is stated in the number of revolutions. The life can be converted into hours using the following formula:

$$\text{Life in hours} = \frac{\text{Number of Revolutions}}{\text{RPM} \cdot 60}$$

Maximum Operating Speeds

The maximum operating speed is limited by the maximum mechanical operating speed (shaft speed) and by the number of pulses per revolution (PPR). The maximum operating speed is given in the specifications. The maximum speed with relation to the pulse frequency can be expressed as follows:

$$\text{Max. speed of rotation RPM} = \frac{\text{Max. Frequency of encoder in Hz} \times 60}{\text{PPR of encoder}}$$



Maximum Output Frequency:

The maximum output frequency is given for the various encoders. For limiting factors such as cable lengths and diameters, please see the section on cable lengths. When designing the electronic evaluation circuitry for maximum frequencies and noise suppression, tolerances should be taken into account in order to provide a safety margin so as to handle maximum output frequencies which may occur in the specific application. The maximum occurring frequency f_{max} can be calculated using the following formula:

$$f_{\text{inHz}(\text{max})} = \frac{(\text{max shaft speed in RPM}) \times (\text{pulses per revolution PPR})}{60}$$

Maximum output frequency f_{max} in relation to cable length and operating voltage at 25 °C and 20 mA load with our Wachendorff cable:

Output circuit	G24		I24	
	Power supply	f_{out}	Power supply	f_{out}
10 m	10-30 V	200 kHz	10-30 V	200 kHz
50 m	12/24 V	200 kHz	12 V	200 kHz
	30 V	150 kHz	24 V	100 kHz
			30 V	50 kHz
100 m	12/24 V	200 kHz	12 V	200 kHz
	30 V	70 kHz	24 V	50 kHz

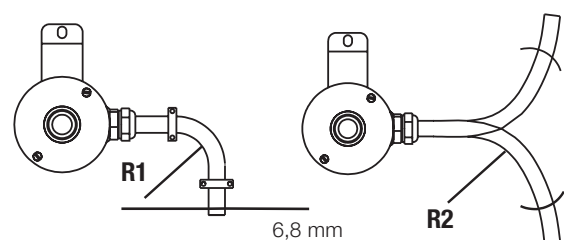
Output circuit	G05	I05 / 245
100 m	200 kHz	200 kHz

Output circuit	R30	
	Power supply	f_{out}
10 m	5-30 V	200 kHz
50 m	5 V	200 kHz
	12 V	155 kHz
	24 V	75 kHz
	30 V	58 kHz
100 m	5 V	200 kHz
	12 V	70 kHz
	24 V	30 kHz
	30 V	24 kHz

Cable

The connecting cable is a flexible 6-pin control cable (9-pin with complementary/inverted outputs) with the following properties:

Core:	stranded copper wire	
Cross-section:	0,34 mm ² for power lines	
	0,14 mm ² for signal lines	
Cable cross section:	Circuit G05, G24:	6,3 mm
	Circuit I05, I24, 245:	8,3 mm
Shield:	Tinned braided copper	
	Stranded filter wire for simple connection	
Outer sheath:	light-grey PVC, 0,6 mm	
Line resistance for	0,14 mm ² :	max. 148 Ohm/km
	0,34 mm ² :	max. 57 Ohm/km
Operating capacity	140 nF/km	
Core/Core:	140 nF/km	
Core shield:	approx. 155 nF/km	



Cable ø	R1	R2	Temperature
6,3 mm	31,5 mm	94,5 mm	T > -20 °C (-4 °F)
8,3 mm	41,5 mm	124,5 mm	T > -20 °C (-4 °F)

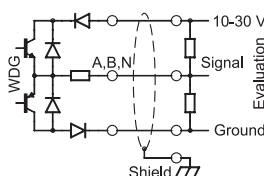
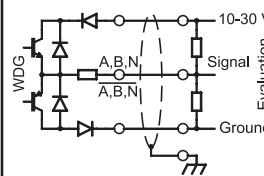
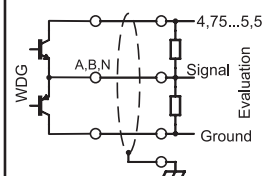
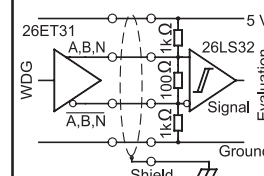
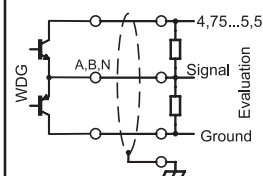
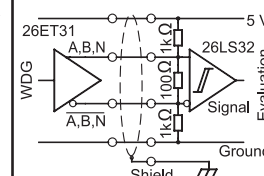
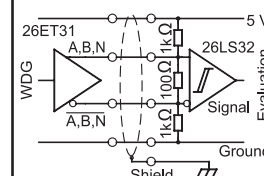
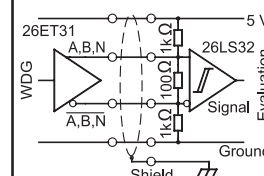
Cable length:

Using Wachendorff encoder cable a cable run of up to 100m is possible (150m for SINUS encoders). However the actual achievable cable length depends on the possible effects of noise interference and should therefore be checked for each individual case.

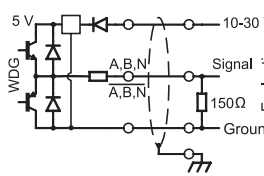
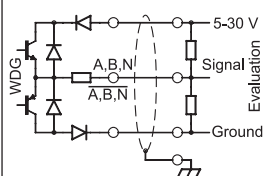
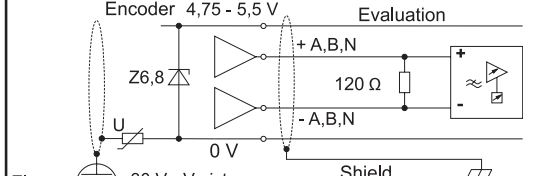
Cable colour codes:

BK = black	VT = violet
BN = brown	GY = gray
RD = red	WH = white
OG = orange	PK = pink
YE = yellow	GD = gold
GN = green	TQ = turquoise
BU = blue	SR = silver

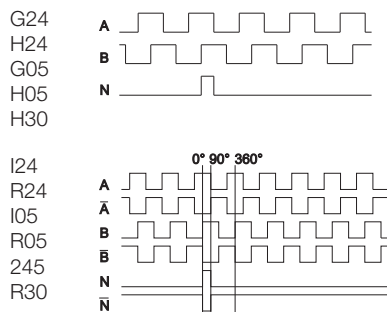
Output circuits / Electrical Data

Key	G24 (HTL)	H24 (HTL)	I24 (HTL)	R24 (HTL)	G05 (TTL)	H05 (TTL)	I05 (RS422 TTL)	R05 (RS422 TTL)
Output circuit								
Power supply	10-30 VDC	10-30 VDC	10-30 VDC	10-30 VDC	4,75-5,5 VDC	4,75-5,5 VDC	4,75-5,5 VDC	4,75-5,5 VDC
Current consumption	max. 70 mA	max. 70 mA	max. 70 mA	max. 70 mA	max. 70 mA	max. 70 mA	max. 70 mA	max. 70 mA
Channels	A, B, N	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	A, B, N	A, B, N	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$
Output	push-pull	push-pull	push-pull	push-pull	push-pull	push-pull	push-pull	push-pull
Load	max. 40 mA	max. 40 mA	max. 40 mA	max. 40 mA	max. 40 mA	max. 40 mA	max. 40 mA	max. 40 mA
Signal level	at 20 mA $H > U_B - 2,5 \text{ VDC}$ $L < 2,5 \text{ VDC}$	at 20 mA $H > U_B - 2,5 \text{ VDC}$ $L < 2,5 \text{ VDC}$	at 20 mA $H > U_B - 2,5 \text{ VDC}$ $L < 2,5 \text{ VDC}$	at 20 mA $H > U_B - 2,5 \text{ VDC}$ $L < 2,5 \text{ VDC}$	at 20 mA $H > 2,5 \text{ VDC}$ $L < 0,5 \text{ VDC}$	at 20 mA $H > 2,5 \text{ VDC}$ $L < 0,5 \text{ VDC}$	at 20 mA $H > 2,5 \text{ VDC}$ $L < 0,5 \text{ VDC}$	at 20 mA $H > 2,5 \text{ VDC}$ $L < 0,5 \text{ VDC}$
Rise time t_r / t_f	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$
Pulse frequency	max. 200 kHz	max. 200 kHz	max. 200 kHz	max. 200 kHz	max. 200 kHz	max. 200 kHz	max. 200 kHz	max. 200 kHz
Circuit protection	yes	yes	yes	yes	no	no	no	no
Early-warning output	yes	no	yes	no	yes	no	yes	no

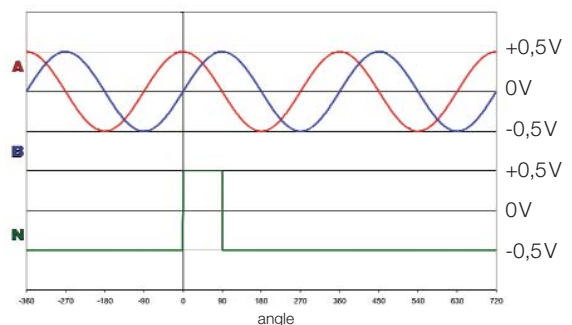
Output circuits / Electrical Data

Key	245 (TTL)	H30 / R30 (HTL)	SIN (Sinus)	
Output circuit				
Power supply	10-30 VDC	5-30 VDC	Power supply	5 VDC
Current consumption	max. 70 mA	max. 70 mA	Current consumption	max. 100 mA without load
Channels	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	A, B, N, $\bar{A}$, $\bar{B}$, $\bar{N}$	Channels/Output	Sinus, Cosinus, N
Output	push-pull	push-pull	Load on the output	min. 120 Ohm terminating resistor between + and - output
Load	max. 40 mA	max. 40 mA	Signal level	1 V _{ss} +/- 25%
Signal level	at 20 mA $H > 2,5 \text{ VDC}$ $L < 1,2 \text{ VDC}$	at 20 mA $H > U_B - 10\% U_B$ $L < 2,5 \text{ VDC}$	Limit frequency (-3dB)	100 kHz
Rise time t_r / t_f	$< 1 \mu\text{s}$	$< 1 \mu\text{s}$	Circuit protection	no
Pulse frequency	max. 200 kHz	max. 200 kHz	Early-warning output	yes
Circuit protection	no	yes (58er only inverse-polarity protection)	Cable length	max. 150 m at $< 260 \text{ pF/m}$
Early-warning output	yes	no		

Pulse diagram

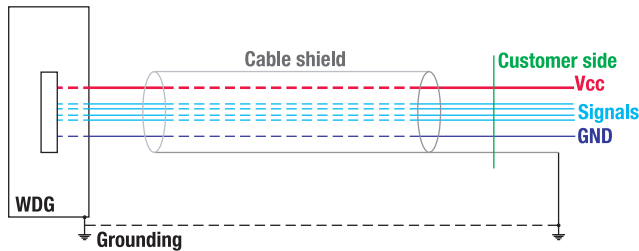


SIN-Pulse figure (differential input)

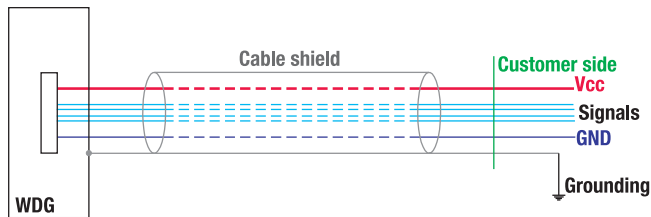


Typical screening concepts for WDG encoders with cable outlet

K3: Screen separated at encoder.
Cable screening earthed on customer side
The encoder housing must be earthed separately.



L3: Encoder housing with cable screen connected.
Encoder housing not earthed separately.



Note:

In order to avoid compensating flows which will damage the ball bearing in an earth loop, earthing on both sides is not recommended.

Pin assignment:

											cable							
	connector				M12 sensor connector						SUB-D connector							
	S2 axial, S3 radial, 7-pin	S4 axial, S5 radial, 12-pin	S6 radial, 6-pin	S7 axial, 4-pin	SB4 axial, SC4 radial, 4-pin	SB5 axial, SC5 radial, 5-pin	SB8 axial, SC8 radial, 8-pin	SB12 axial, SC12 radial, 12-pin	SD15 radial 15-pin		K2/L2 axial; K3/L3 radial K1							
Circuit	G/H05 G/H24 H30	G/H05 G/H24 H30	I/R05 I/R24 245 SIN R30	G/H05 G/H24 H30	H05 H24 H30	H05 H24 H30	H05 H24 H30	R05 R24 R30	G/H05 G/H24 H30	I/R05 I/R24 245 SIN R30	G/H05 G/H24 H30	I/R05 I/R24 245 SIN R30	G/H05 G/H24 H30	R30	I/R05 I/R24 245 R30	Sinus		
Minus U-	1	10	10	A	1	3	3	1	1	3	3	4	4	white	white	white	white	
Plus U+	2	12	12	F	2	1	1	2	2	1	1	3	3	brown	brown	brown	brown	
A	3	5	5	C	3	2	4	3	3	4	4	1	1	green	green	green	green	
B	4	8	8	B	4	4	2	4	4	6	6	5	5	yellow	yellow	yellow	grey	
N	5	3	3	D	-	-	5	5	5	8	8	7	7	grey	grey	grey	black	
Early warning output*	6	11	11 Sin 7	E	-	-	-	-	5	5	14	14	pink	-	pink	red		
A inv.	-	-	6	-	-	-	-	6	-	9	-	2	-	red	red	yellow		
B inv.	-	-	1	-	-	-	-	7	-	7	-	6	-	pink	black	pink		
N inv.	-	-	4	-	-	-	-	8	-	10	-	8	-	blau	violet	violet		
n. c.	7	1, 2, 4, 6, 7, 9	2, 7, 9 Sinus 2, 9, 11	-	-	-	-	6, 7, 8	-	2, 7, 9, 10, 11, 12	2, 11, 12	2, 6, 8, 9, 10, 11, 13, 15	9, 10, 11, 13, 15	-	-	-	-	
Shield	-	-	-	-	-	-	-	-	-	-	-	12	12	Flex	Flex	Flex	Flex	
Accessories					Accessories													
IP40 	KD-7-40	-	KM-6-40	-	KI-4-67-05-S	KI-5-67-05-S	KI-8-67-05-S	KI-12-67-05-S	-	-	-	-	-		5 m			
IP40 	KDA-7-40	-	-	-	KIA-4-67-05-S	KIA-5-67-05-S	KIA-8-67-05-S	KIA-12-67-05-S	-	-	-	-	-		5 m			
IP65 	-	-	-	KVA-4-65	KI-4-67-10-S	KI-5-67-10-S	KI-8-67-10-S	KI-12-67-10-S	-	-	-	-	-		10 m			
IP67 	KD-7-67	KD-12-67	-	-	KI-4-67-10-S	KIA-5-67-10-S	KIA-8-67-10-S	KIA-12-67-10-S	-	-	-	-	-		10 m			
IP67 	KDA-7-67	KDA-12-67	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Note: Connector housing/shield electrically connected to encoder housing (Not S7, K1, K2, K3)

*Not output circuit (H/R)

Protection from Noise Interference

For efficient protection of the entire system we recommend the following measures:

For normal applications it is sufficient to connect the shield of the encoder cable to the earth potential. The entire system, consisting of the encoder and the signal processing equipment should be grounded at one single location by using a low resistance connection (e.g. braided copper).

- In all cases the connecting cables should be shielded and should be locally kept away from power lines and other noise-generating equipment.
- Sources of interference such as motors, solenoid valves, frequency converters etc should always have their noise suppressed at source.
- Encoders should not be powered from the same mains supply as solenoid valves or contactors, as this may cause interference.

In certain applications it may be necessary to install additional protection against interference, depending on the way the system is earthed and on the noise fields present. Such measures would include: capacitive coupling of the screen, the installation of HF-filters in the encoder cable or the installation of transient protection diodes. If these or any other measures are necessary, please contact us.

Please contact:



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