



# Online Data sheet

## Encoder WDG N 36K

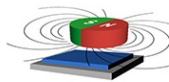
[www.wachendorff-automation.com/wdgn36k](http://www.wachendorff-automation.com/wdgn36k)

### **Wachendorff Automation**

#### **... systems and encoders**

- Complete systems
- Industrial rugged encoders to suit your application
- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
- Made in Germany
- Worldwide distributor network

# Encoder WDG 36K via Smartphone (NFC) configurable



Wachendorff Apps WDG N

- Due to high quality electronics any number of pulses up to 16384 via NFC configurable
- HTL/TTL via NFC configurable
- Protection class IP67, at shaft input IP65
- High output frequency up to 1 MHz
- Reverse polarity protection and short-circuit protection at 4.75 VDC to 32 VDC

[www.wachendorff-automation.com/wdgn36k](http://www.wachendorff-automation.com/wdgn36k)

## Configurable via NFC

Resolution	
Pulses per revolution PPR	1 PPR up to 16384 PPR
Mechanical Data	
Housing	
Flange	round flange
Flange material	aluminum
Housing cap	Stainless steel, NFC cover: Thermoplastic polyamide
Housing	Ø 36 mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 0.3 Ncm at ambient temperature
Shaft	Ø 6 mm
Shaft length	L: 11.5 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Bearings	
Bearings type	2 precision ball bearings
Nominale service life	1.4 x 10 <sup>8</sup> revs. at 100 % rated shaft load 2 x 10 <sup>9</sup> revs. at 40 % rated shaft load 1.7 x 10 <sup>10</sup> revs. at 20 % rated shaft load
Max. operating speed	12000 rpm
Machinery Directive: basic data safety integrity level	
MTTF <sub>d</sub>	1200 a
Mission time (TM)	25 a
Nominale service life (L10h)	1.7 x 10 <sup>10</sup> revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 32 VDC: typ. 80 mA
Output circuit	HTL HTL, inv. TTL TTL, RS422 compatible, inv.
Pulse frequency	HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz
Channels	BAS: ABN + inverted signals ADV: CH1, CH2, CH3, CH4; + inverted signals

Load	max. 40 mA / channel
Circuit protection	inverse-polarity and short-circuit protection
Nullimpuls setzen:	Setzen: SET = +UB für 2 s Deaktiviert: SET = GND
Accuracy	
Phase offset	90° ± max. 8.5 % of the period duration
pulse-/pause-ratio	50 % ± max. 7 %
Configurable via NFC:	
BASIC: (BAS)	
Channels:	ABN and inverted
HTL / TTL	freely selectable
Pulses / revolution:	1 ppr up to 16384 ppr freely selectable
Advanced (ADV):	
Channels:	4 channels configurable + inv. signals (ABN possible)
HTL / TTL:	freely selectable
Pulses / revolution:	1 ppr up to 16384 ppr freely selectable
Number of pulses for each channel:	individually selectable
Set zero pulse:	yes
Pulse width and position:	Width and position adjustable
Environmental data	
Noise immunity:	
ESD (DIN EN 61000-4-2):	8 kV
EMC: (DIN EN 61000-4-3):	10 V/m
Burst (DIN EN 61000-4-4):	2 kV
High frequency fields (DIN EN 61000-4-6):	10 V
Surge (DIN EN 61000-4-5):	2 kV
Radio interference:	According DIN EN 55011
NFC:	
EMC:	According ETSI EN 301 489
RED:	According ETSI EN 300 330
Electrical safety:	
	According DIN EN 61010-1, UL 61010-1, CSA C22.0 No. 61010-1-12
Vibration: (DIN EN 60068-2-6)	300 m/s <sup>2</sup> (10 Hz up to 2000 Hz)

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Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
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Design:	According to DIN VDE 0160
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**Duty information**

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Customs tariff number:	90318020
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Country of origin:	Germany
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**General Data**

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Weight	approx. 125 g
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Connections	cable or connector outlet
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Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40
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Operating temperature	Connector: -40 °C up to +85 °C, cable: -20 °C up to +80 °C
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Storage temperature	Connector: -40 °C up to +100 °C, cable: -30 °C up to +80 °C
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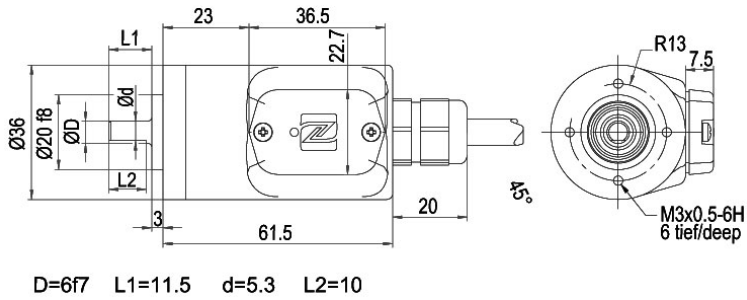
**More Information**

General technical data and safety instructions  
<http://www.wachendorff-automation.com/gtd>

Options  
<http://www.wachendorff-automation.com/acc>

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## Cable connection L2 axial with 2 m cable (BAS)



### Description

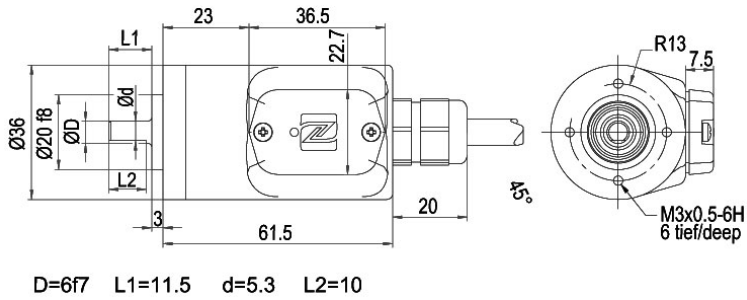
ABN inv. poss.

**L2** axial, shield connected to encoder housing

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Assignments	
	<b>L2</b>
<b>Circuit</b>	BAS
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>A</b>	GN
<b>B</b>	YE
<b>N</b>	GY
<b>A inv.</b>	RD
<b>B inv.</b>	BK
<b>N inv.</b>	VT
<b>Shield</b>	flex

## Cable connection L2 axial with 2 m cable (ADV)



### Description

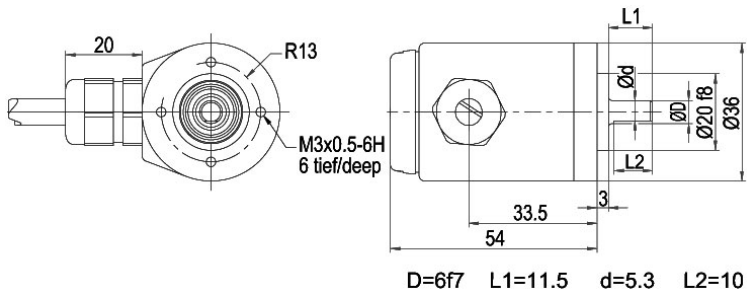
ABN inv. poss.

L2 axial, shield connected to encoder housing

•

Assignments	
	<b>L2</b>
Circuit	ADV
GND	WH
(+) Vcc	BN
CH1	GN
CH2	YE
CH3	GY
CH4	GYPK
SET	PK
CH1 inv.	RD
CH2 inv.	BK
CH3 inv.	VT
CH4 inv.	RDBU
Shield	flex

**Cable connection L3 radial with 2 m cabel (BAS)**



**Description**

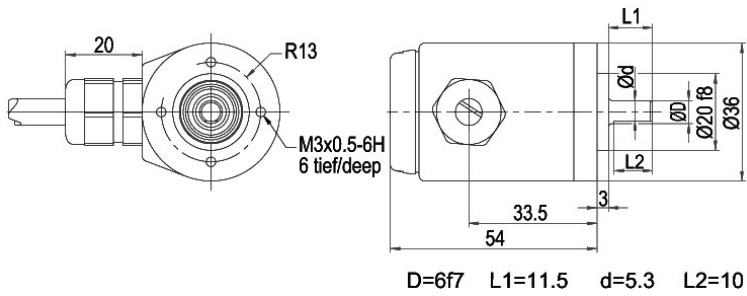
**ABN inv. poss.**

**L3** radial, shield connected to encoder housing

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Assignments	
	<b>L3</b>
<b>Circuit</b>	BAS
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>A</b>	GN
<b>B</b>	YE
<b>N</b>	GY
<b>A inv.</b>	RD
<b>B inv.</b>	BK
<b>N inv.</b>	VT
<b>Shield</b>	flex

**Cable connection L3 radial with 2 m cabel (ADV)**



**Description**

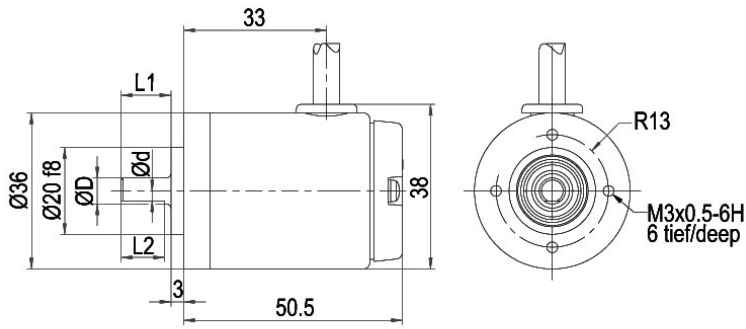
**ABN inv. poss.**

**L3** radial, shield connected to encoder housing

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Assignments	
	<b>L3</b>
<b>Circuit</b>	ADV
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>CH1</b>	GN
<b>CH2</b>	YE
<b>CH3</b>	GY
<b>CH4</b>	GYPK
<b>SET</b>	PK
<b>CH1 inv.</b>	RD
<b>CH2 inv.</b>	BK
<b>CH3 inv.</b>	VT
<b>CH4 inv.</b>	RDBU
<b>Shield</b>	flex

**Cable K1 (IP40) radial with 2 m cable (BAS)**



D=677 L1=11.5 d=5.3 L2=10

**Description**

**ABN inv. poss.**

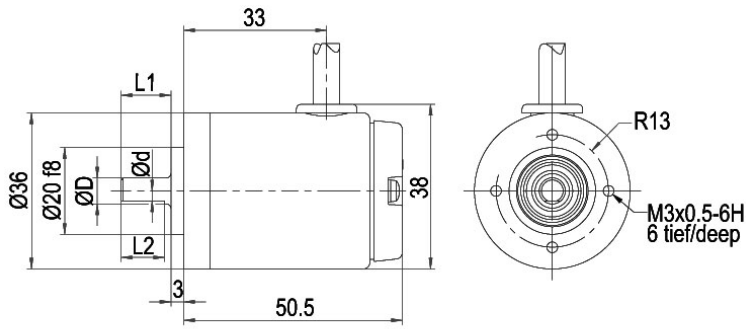
**K1** radial, shield not connected (IP40)

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Assignments	
	<b>K1</b>
<b>Circuit</b>	BAS
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>A</b>	GN
<b>B</b>	YE
<b>N</b>	GY
<b>A inv.</b>	RD
<b>B inv.</b>	BK
<b>N inv.</b>	VT
<b>Shield</b>	flex



**Cable K1 (IP40) radial with 2 m cable (ADV)**



D=677 L1=11.5 d=5.3 L2=10

**Description**

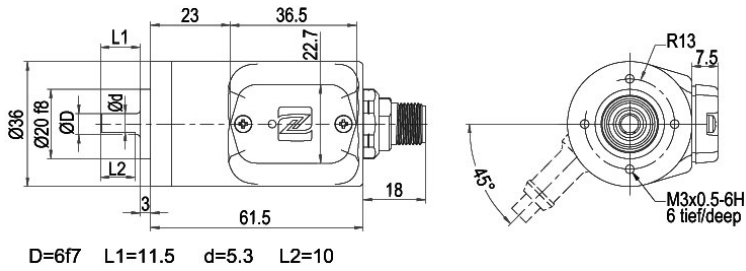
**ABN inv. poss.**

**K1** radial, shield not connected (IP40)

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Assignments	
	<b>K1</b>
<b>Circuit</b>	ADV
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>CH1</b>	GN
<b>CH2</b>	YE
<b>CH3</b>	GY
<b>CH4</b>	GYPK
<b>SET</b>	PK
<b>CH1 inv.</b>	RD
<b>CH2 inv.</b>	BK
<b>CH3 inv.</b>	VT
<b>CH4 inv.</b>	RDBU
<b>Shield</b>	flex

## Sensor connector (M12x1) SB axial, 8-pin (BAS)

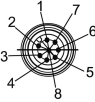


### Description

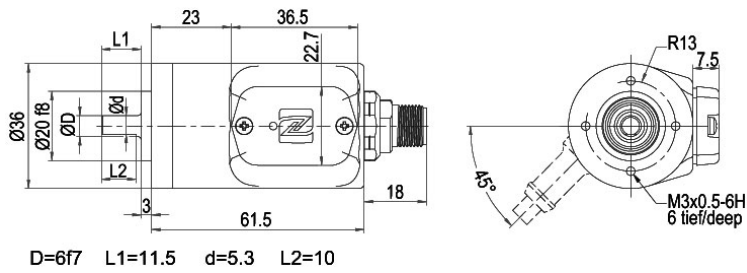
ABN inv. poss.

**SB8** axial, 8-pin, Connector connected to encoder housing

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Assignments	
	<b>SB8</b>
	<b>8-pin</b>
	
<b>Circuit</b>	BAS
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>A inv.</b>	6
<b>B inv.</b>	7
<b>N inv.</b>	8

## Sensor connector (M12x1) SB axial, 12-pin (ADV)



### Description

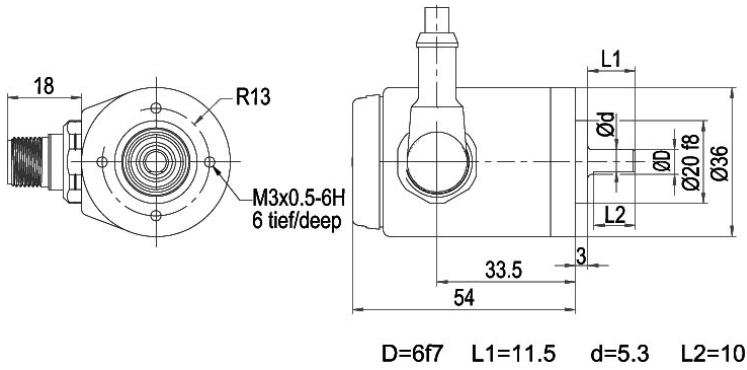
ABN inv. poss.

SB12 axial, 12-pin, Connector connected to encoder housing

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Assignments	
	SB12
	12-pin
Circuit	ADV
GND	3
(+) Vcc	1
CH1	4
CH2	6
CH3	8
CH4	11
SET	5
CH1 inv.	9
CH2 inv.	7
CH3 inv.	10
CH4 inv.	12
n. c.	2

**Sensor-connector (M12x1) SC radial, 8-pin (BAS)**



**Description**

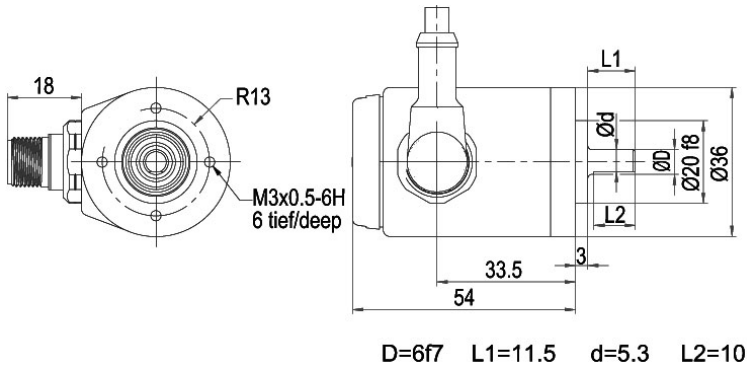
ABN inv. poss.

**SC8** radial, 8-pin, Connector connected to encoder housing

•

Assignments	
	<b>SC8</b>
	<b>8-pin</b>
<b>Circuit</b>	BAS
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>A inv.</b>	6
<b>B inv.</b>	7
<b>N inv.</b>	8

**Sensor-connector (M12x1) SC radial, 12-pin (ADV)**



**Description**

**ABN inv. poss.**

**SC12** radial, 12-pin, Connector connected to encoder housing

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Assignments	
	SC12
	12-pin
<b>Circuit</b>	ADV
<b>GND</b>	3
<b>(+) Vcc</b>	1
<b>CH1</b>	4
<b>CH2</b>	6
<b>CH3</b>	8
<b>CH4</b>	11
<b>SET</b>	5
<b>CH1 inv.</b>	9
<b>CH2 inv.</b>	7
<b>CH3 inv.</b>	10
<b>CH4 inv.</b>	12
<b>n. c.</b>	2

**Options****Cable length****Order key**

The encoder WDG 36K can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see [www.wachendorff-automation.com/atd](http://www.wachendorff-automation.com/atd)

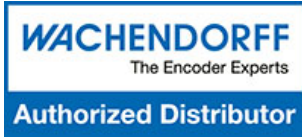
**XXX = Decimeter**

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

Example: 5 m cable = 050

Example Order No.	Type					Your encoder
WDGN 36K	WDGN 36K					WDGN 36K
	<b>Shaft</b>					
06	06					
	<b>Pulses per revolution PPR:</b>					
X	configurable 1-16384 Other PPRs on request					
	<b>Channels:</b>					
X	X (BAS=ABN, ADV= CH1,CH2,CH3,CH4)					
	<b>Output circuit</b>					
BAS	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	<b>Light reserve warning</b>	<b>Order key</b>	
	configurable 1-16384	4.75 - 32 4.75 - 32	configurable HTL, TTL (A,B,N + inv.) configurable HTL, TTL; 4 channels+inv.	- -	BAS ADV	
	<b>Electrical connections</b>					
L2	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>	
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>					
	radial, shield not connected (IP40)			•	K1	
	axial, shield connected to encoder housing			•	L2	
	radial, shield connected to encoder housing			•	L3	
	<b>Connector: (shield connected to encoder housing)</b>					
	sensor-connector, M12x1, 8-pin, axial			•	SB8	
	sensor-connector, M12x1, 8-pin, radial			•	SC8	
	sensor-connector, M12x1, 12-pin, axial			•	SB12	
sensor-connector, M12x1, 12-pin, radial			•	SC12		
	<b>Options</b>					
	<b>Description</b>			<b>Order key</b>		
	Without option			Empty		
	Cable length			XXX = Decimeter		

<b>Example Order No.=</b>	WDGN 36K	06	X	X	BAS	L2		WDGN 36K							<b>Your encoder</b>
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For further information please contact our local distributor.  
Here you find a list of our distributors worldwide.  
<https://www.wachendorff-automation.com/contact-sales-en/>

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