



Online Data sheet

Encoder WDGA 36J RS485

www.wachendorff-automation.com/wdga36jrs485

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 WDGA 36J absolute RS485 magnetic, with EnDra®-Technology



EnDra®
Technologie

RS485

- Protection rating: IP67 + IP69K, (high pressure / steam cleaning)
- EnDra® multiturn technology: maintenance-free and environmentally friendly
- RS485
- Single-turn/Multi-turn (max. 16 bit /32 bit)
- Forward-looking technology with 32 bit processor
- 2-colour-LED as indicator for operating condition
- CRC checksum

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Mechanical Data

Housing

Flange	servo flange
Flange material	aluminum
Housing cap	stainless steel
Housing	Ø 36 mm

Shaft(s)

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

Shaft	Ø 10 mm
Shaft length	L: 20 mm
Max. Permissible shaft loading radial	300 N
Max. Permissible shaft loading axial	300 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	5 x 10 ⁸ revs. at 100 % rated shaft load 5.44 x 10 ⁹ revs. at 40 % rated shaft load 3.1 x 10 ¹⁰ revs. at 20 % rated shaft load
Max. operating speed	6000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	1000 a
Mission time (TM)	20 a
Nominal service life (L10h)	3.1 x 10 ¹⁰ revs. at 20 % rated shaft load and 6000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 32 VDC: typ. 50 mA
Power consumption	max. 0.5 W
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 80 mA
Power consumption	max. 0.44 W

Sensor data

Single-turn technology	innovative hall sensor technology
Single-turn resolution	up to 65,536 steps/360° (16 bit)
Single-turn accuracy	± 0.0878° (12 bit)
Single-turn repeat accuracy	± 0.0878° (12 bit)
Internal cycle time	600 µs

Multi-turn technology	patented EnDra® technology no battery no gear.
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Multi-turn resolution	up to 32 bit.
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Environmental data

ESD (DIN EN 61000-4-2):	8 kV
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Burst (DIN EN 61000-4-4):	2 kV
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includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3 DIN EN 61326-1
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Vibration: (DIN EN 60068-2-6)	300 m/s ² (10 Hz up to 2000 Hz)
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Shock: (DIN EN 60068-2-27)	5000 m/s ² (6 ms)
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Design:	according DIN VDE 0160
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Turn on time:	<1,5 s
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Duty information

Customs tariff number:	90318020
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Country of origin:	Germany
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Interface

Interface:	RS485
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Configuration inputs:

Positive direction of counting: (View on shaft)	DIR = GND -> cw DIR = +Ub -> ccw
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Set to zero:	Preset = apply +Ub for 2 s
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Baud rate:	Standard: 9600 bit/s Other baud rates on request
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Polling cycle:	Standard: 20 ms (Tolerances: +/- 2 ms) Other polling cycles on request
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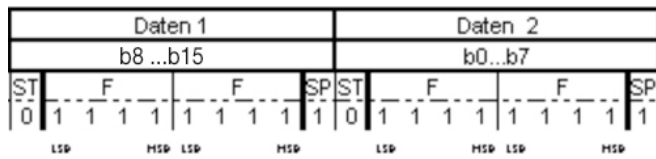
Telegram length:	6 byte singleturn, 8 byte multiturn
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Telegram composition:	2 Byte Präambel, 2 /4 Byte user data, 2 Byte CRC
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Bytecomposition:	Startbit (0) and Stopbit (1), Bytes are Big-Endian and LSB first, no Paritybit
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CRC-Definition:	<p>Code:</p> <ul style="list-style-type: none"> • CRC-CCITT 16 bit ($X^{16}+X^{12}+X^5+1$) • Startvalue 0x1021, • Start/Stopbits aren't included • Präambel (0xABCD) is included, • Bitwise orientation: per CRC-Refresh there is used 1 Byte
Protocol malfunction behaviour:	<p>If encoder recognizes that it's impossible to send a right positionvalue (e.G.: Magnet-loss), there will be send out a telegram with maximum value user Data at normalcycletime and normal Baudrate.</p>

Protocol RS485



LED-behaviour:

At Start / while booting:	- red gleam (< 2,3 s)
Malfunction:	- constant red gleam (> 2,3 s)
Normal function:	- constant green gleam
No supply:	- no gleam

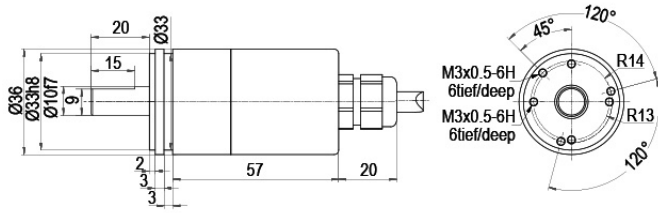
General Data

Weight	approx. 210 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67+IP69K all around
Operating temperature	-40 °C up to +85 °C
Storage temperature	-40 °C up to +100 °C

More Information

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

Cable connection L2 axial with 2 m cable

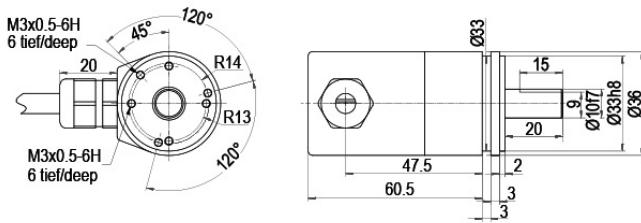


Description

L2 axial, shield connected to encoder housing

Assignments	
	L2
S- (GND)	WH
S+ (DCin)	BN
A (DATA+)	GY
B (DATA-)	PK
PRESET	BU
DIR	RD
Shield	housing

Cable connection, L3 radial with 2 m cable

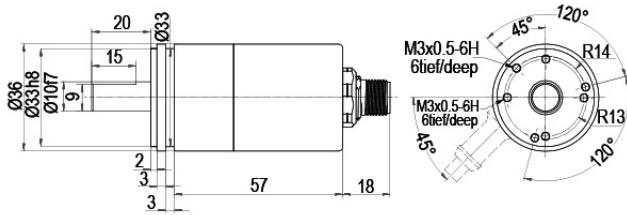


Description

L3 radial, shield connected to encoder housing

Assignments	
	L3
S- (GND)	WH
S+ (DCin)	BN
A (DATA+)	GY
B (DATA-)	PK
PRESET	BU
DIR	RD
Shield	housing

Connector, M12x1, CB8, axial, 8-pin

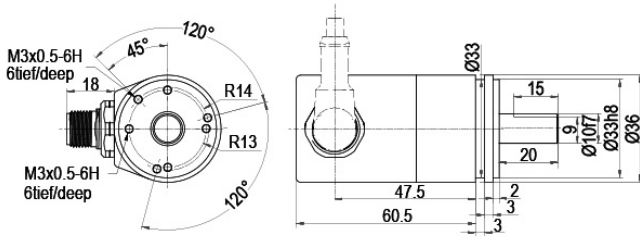


Description

CB8 axial, 8-pin, shield connected to encoder housing

Assignments	
	CB8
S- (GND)	1
S+ (DCin)	2
A (DATA+)	5
B (DATA-)	6
PRESET	7
DIR	8
Shield	housing

Steckerabgang, M12x1, CC8, radial, 8-polig



Description

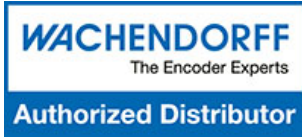
CC8 radial, 8-pin, shield connected to encoder housing

Assignments	
	CC8
S- (GND)	1
S+ (DCin)	2
A (DATA+)	5
B (DATA-)	6
PRESET	7
DIR	8
Shield	housing

Example Order No.	Type	Your encoder	
WDGA 36J	WDGA 36J	WDGA 36J	
	Shaft	Order key	
10	Ø 10 mm	06	
	Single-turn Resolution	Order key	
14	Single-turn resolution 1 bit up to 16 bit: (e. G. 14 bit)	14	
	Multi-turn Resolution	Order key	
18	Multi-turn up to 32 bit (e. G. 18 bit) (Single-turn + Multi-turn max. 32 bit) No Multi-turn: 00	18	
	Data protocol	Order key	
EI	RS485	EI	
	Software	Order key	
A	up to date release	A	
	Code	Order key	
B	binary	B	
	Power supply	Order key	
0	4.75 V up to 32 V (standard)	0	
	4.75 V up to 5.5 V	1	
	Galvanic isolation	Order key	
0	no	0	
	Electrical connections	Order key	
CB8	Cable:		
	axial, shield connected to encoder housing, with 2 m cable	L2	
	radial, shield connected to encoder housing, with 2 m cable	L3	
	Connector:		
	sensor-connector, M12x1, 8-pin, axial, shield connected to encoder housing	CB8	
sensor-connector, M12x1, 8-pin, radial, shield connected to encoder housing	CC8		

Example Order No.	WDGA 36J	10	14	18	EI	A	B	0	0	CB8
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WDGA 36J										Example Order No.
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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/>

WACHENDORFF

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