

Online Data Sheet

Encoder WDG 58A

www.wachendorff-automation.com/wdg58a

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

IndustrieROBUST

Encoder WDG 58A



- Robust construction for industrial use
- Up to 25000 PPR by use of high grad electronics
- Protection to IP67, shaft sealed to IP65
- High electrical immunity
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Optional: -40 °C up to +80 °C

www.wachendorff-automation.com/wdg58a

Resolution

Max. pulses per revolution up to 25000 PPR

Mechanical Data

Housing

Flange	synchro flange
Flange material	aluminium
Housing cap	aluminium, powder coated
Housing	Ø 58 mm
Cam mounting	pitch 69 mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 0.5 Ncm at ambient temperature
Shaft	Ø 6 mm
Shaft length	L: 12 mm
Max. Permissible shaft loading radial	125 N
Max. Permissible shaft loading axial	70 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	3 x 10 ⁸ revs. at 100 % rated shaft load 5 x 10 ⁹ revs. at 40 % rated shaft load 4 x 10 ¹⁰ revs. at 20 % rated shaft load
Max. operating speed	10000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	4 x 10 ¹⁰ revs. at 20 % rated shaft load and 10000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 100 mA 5 VDC up to 30 VDC: max. 70 mA 10 VDC up to 30 VDC: max. 100 mA
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Output circuit

TTL
TTL, RS422 compatible, inv.
HTL
HTL, inv.
1 Vss sin/cos

Pulse frequency

TTL 5000 ppr: max. 200 kHz
HTL 5000 I/U: max. 200 kHz
TTL 5000 ppr: max. 2 MHz
HTL 5000 ppr: max. 600 kHz
1 Vss sin/cos: max. 100 kHz

Channels

AB
ABN
and inverted signals

Load

max. 40 mA / channel
@ 1 Vss sin/cos: min. 120 Ohm

Circuit protection

circuit type F24, G24, H24, I24, P24, R24 only

Accuracy

Phase offset 90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio 50 % ± max. 7 %

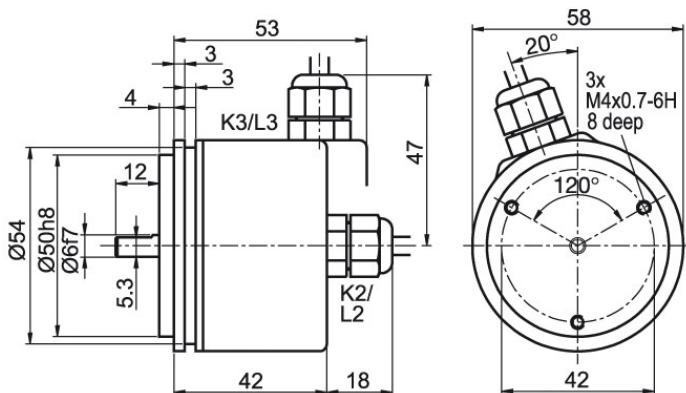
General Data

Weight	approx. 230 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65
Operating temperature	-20 °C up to +80 °C 1 Vss: -10 °C up to +70 °C
Storage temperature	-30 °C up to +80 °C

More Information

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

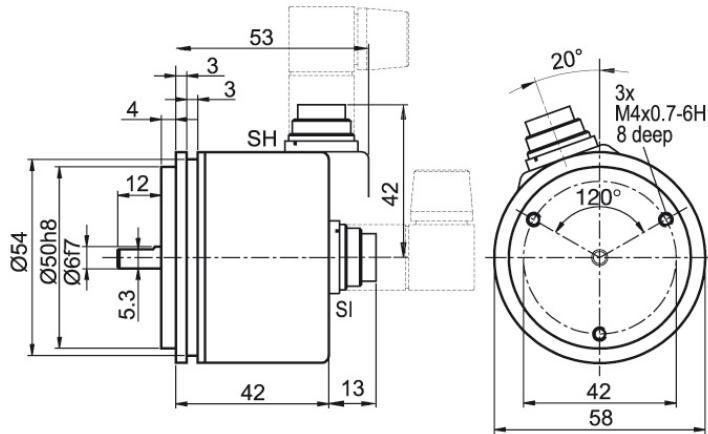
Options
<http://www.wachendorff-automation.com/acc>

Cable connector K2, K3, L2, L3 with 2 m cable

Description

	ABN inv. poss.
K2 axial, shield not connected	•
L2 axial, shield connected to encoder housing	•
K3 radial, shield not connected	•
L3 radial, shield connected to encoder housing	•

Assignments

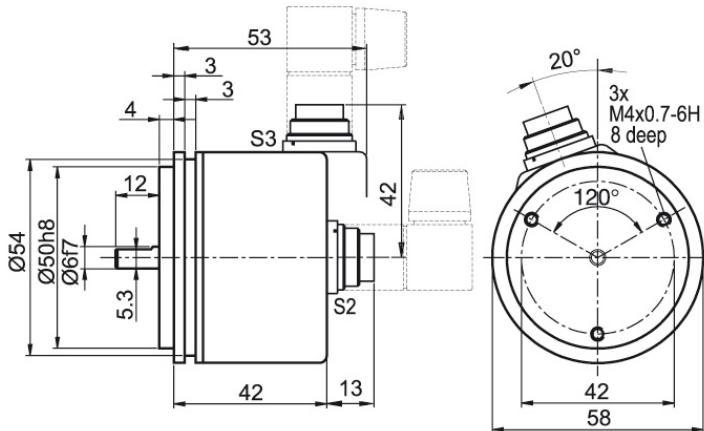
	K2, K3, L2, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, L3	K2, L2, K3, L3
Circuit	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	WH	WH	WH	WH	WH
+UB	BN	BN	BN	BN	BN
A	GN	GN	GN	GN	GN
B	YE	YE	YE	YE	GY
N	GY	GY	GY	GY	-
Light reserve warning	PK	-	PK	-	-
A inv.	-	-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

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

Description
ABN inv. poss.

SI5	axial, 5-pin, shield connected to encoder housing	-
SH5	radial, 5-pin, shield connected to encoder housing	-
SI6	axial, 6-pin, shield connected to encoder housing	-
SH6	radial, 6-pin, shield connected to encoder housing	-
SI8	axial, 8-pin, shield connected to encoder housing	•
SH8	radial, 8-pin, shield connected to encoder housing	•
SI12	axial, 12, shield connected to encoder housing	•
SH12	radial, 12, shield connected to encoder housing	•

Assignments

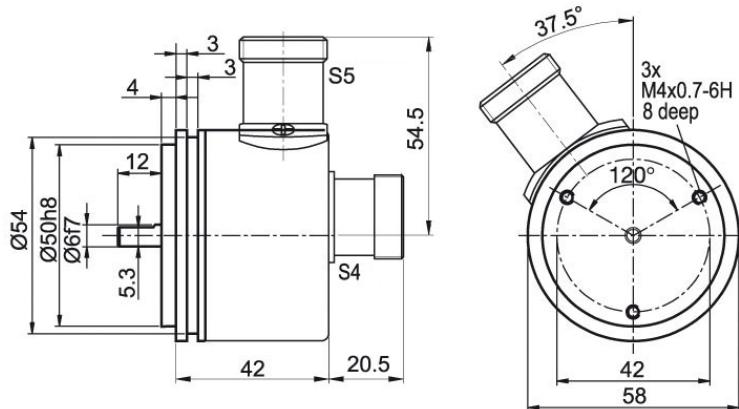
	SI5, SH5	SI6, SH6	SI6, SH6	SI8, SH8	SI8, SH8	SI8, SH8	SI12, SH12	SI12, SH12	SI12, SH12	SI12, SH12
	5-pin	6-pin	6-pin	8-pin	8-pin	8-pin	12	12	12	12
Circuit	F05, H05, F24, H24, H30	G05, G24	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30
GND	1	6	6	1	1	1	K, L	K, L	K, L	K, L
+UB	2	1	1	2	2	2	M, B	M, B	M, B	M, B
A	3	2	2	3	3	3	E	E	E	E
B	4	4	4	4	4	4	H	H	H	H
N	5	3	3	5	5	-	C	C	C	C
Light reserve warning	-	5	-	-	-	-	G	-	G	-
A inv.	-	-	-	-	6	6	-	-	F	F
B inv.	-	-	-	-	7	7	-	-	A	A
N inv.	-	-	-	-	8	-	-	-	D	D
n. c.	-	-	5	6, 7, 8	-	5, 8	A, D, F, J	A, D, F, G, J	J	G, J
Shield	-	-	-	-	-	-	-	-	-	-

Connector (M16x0.75) S2, S3, 7-pin

Description

	ABN inv. poss.
S2 axial, 7-pin, shield connected to encoder housing	-
S3 radial, 7-pin, shield connected to encoder housing	-

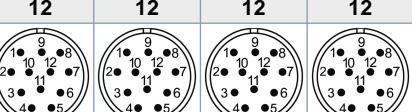
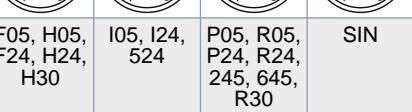
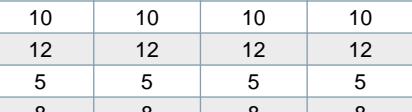
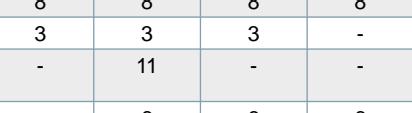
Assignments

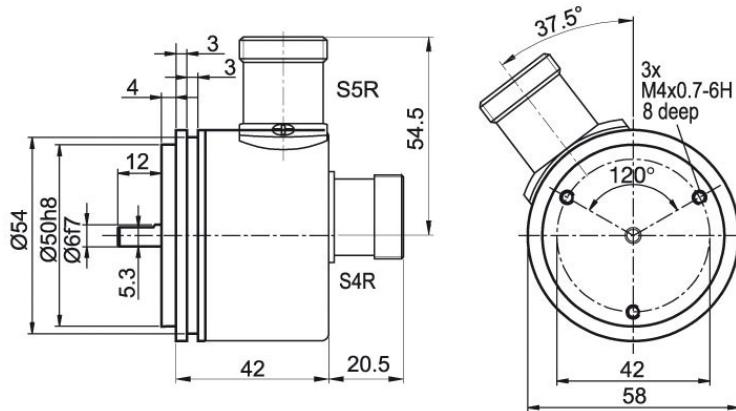
	S2, S3	S2, S3
	7-pin	7-pin
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	1	1
+UB	2	2
A	3	3
B	4	4
N	5	5
Light reserve warning	6	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	7	6, 7
Shield	-	-

Connector (M23) S4, S5, 12-pin

Description

	ABN inv. poss.
S4 axial, 12, shield connected to encoder housing	•
S5 radial, 12, shield connected to encoder housing	•

Assignments

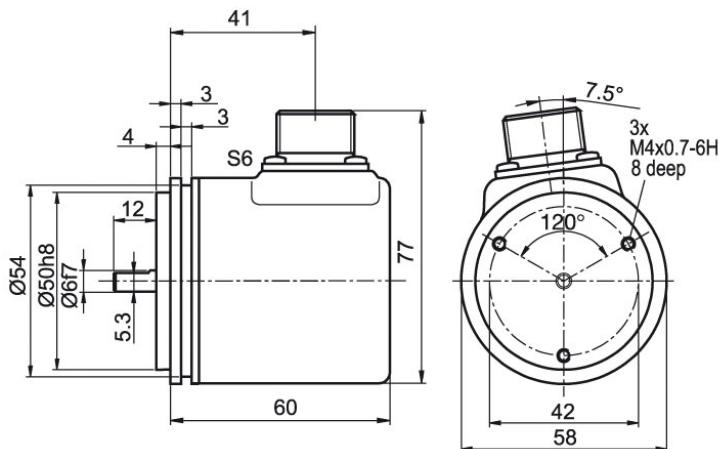
	S4, S5 12	S4, S5 12	S4, S5 12	S4, S5 12
				
Circuit	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10
+UB	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	-
Light reserve warning	-	11	-	-
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	-
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	-	-	-	-

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

Description

	ABN inv. poss.
S4R axial, 12, shield connected to encoder housing	•
S5R radial, 12, shield connected to encoder housing	•

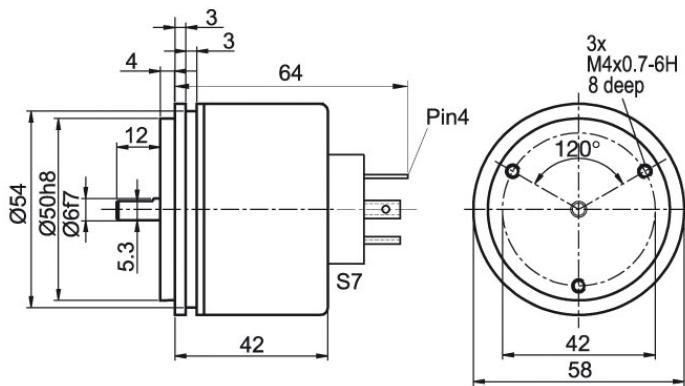
Assignments

	S4R, S5R	S4R, S5R	S4R, S5R	S4R, S5R
	12	12	12	12
Circuit	G05, G24	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30	SIN
GND	10	10	10	10
+UB	12	12	12	12
A	5	5	5	5
B	8	8	8	8
N	3	3	3	-
Light reserve warning	11	11	-	-
A inv.	-	6	6	6
B inv.	-	1	1	1
N inv.	-	4	4	-
n. c.	1, 2, 4, 6, 7, 9	2, 7, 9	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	-	-	-	-

MIL-connector S6, 6-pin

Description
S6 radial, 6-pin,

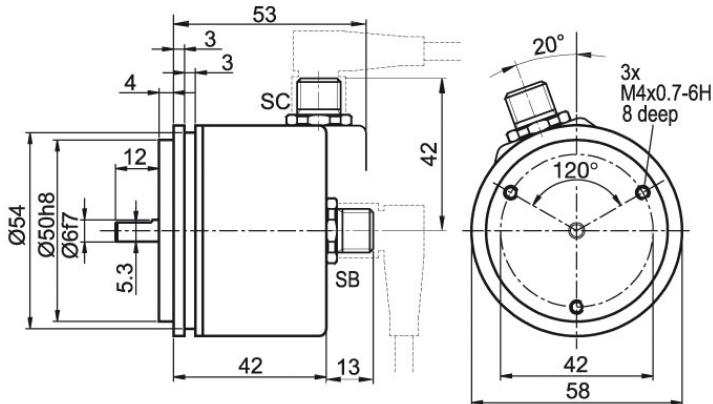
ABN inv. poss.

Assignments		
	S6 6-pin	S6 6-pin
Circuit	G05, G24	F05, H05, F24, H24, H30
GND	A	A
+UB	F	F
A	C	C
B	B	B
N	D	D
Light reserve warning	E	-
A inv.	-	-
B inv.	-	-
N inv.	-	-
n. c.	-	E
Shield	-	-

Valve-connector S7, 4-pin

Description
S7 axial, 4-pin, shield connected to encoder housing

ABN inv. poss.

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

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

Description

	ABN inv. poss.
SB4 axial, 4-pin, shield connected to encoder housing	-
SC4 radial, 4-pin, shield connected to encoder housing	-
SB5 axial, 5-pin, shield connected to encoder housing	-
SC5 radial, 5-pin, shield connected to encoder housing	-
SB8 axial, 8-pin, shield connected to encoder housing	•
SC8 radial, 8-pin, shield connected to encoder housing	•
SB12 axial, 12, shield connected to encoder housing	•
SC12 radial, 12, shield connected to encoder housing	•

Assignments

	SB4, SC4	SB5, SC5	SB8, SC8	SB8, SC8	SB8, SC8	SB12, SC12	SB12, SC12	SB12, SC12	SB12, SC12
	4-pin	5-pin	8-pin	8-pin	8-pin	12	12	12	12
Circuit	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	F05, H05, F24, H24, H30	P05, R05, P24, R24, R30, 245, 645	SIN	G05, G24	F05, H05, F24, H24, H30	I05, I24, 524	P05, R05, P24, R24, 245, 645, R30
GND	3	3	1	1	1	3	3	3	3
+UB	1	1	2	2	2	1	1	1	1
A	2	4	3	3	3	4	4	4	4
B	4	2	4	4	5	6	6	6	6
N	-	5	5	5	-	8	8	8	8
Light reserve warning	-	-	-	-	-	5	-	5	-
A inv.	-	-	-	6	4	-	-	9	9
B inv.	-	-	-	7	6	-	-	7	7
N inv.	-	-	-	8	-	-	-	10	10
n. c.	-	-	6, 7, 8	-	7, 8	2, 7, 9, 10, 11, 12	2, 5, 7, 9, 10, 11, 12	2, 11, 12	2, 5, 11, 12
Shield	-	-	-	-	-	-	-	-	-

Options

Low temperature	Order key
The encoder WDG 58A with the output circuit types F24, G24, H24, I24, P24, R24, F05, G05, I05, P05, 245, 524, 645 is also available with the extended temperature range -40 °C up to +80 °C [-40 °F up to +176 °F] (measured at the flange).	ACA
Low-friction bearings	Order key
The encoder WDG 58A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.25 Ncm and the protection class at the shaft input to IP50.	AAC
Cable length	Order key
The encoder WDG 58A 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	XXX = Decimeter
Please extend the standard order code with a three figure number, specifying the cable length in decimetres. Example: 3 m cable = 030	

Example Order No.	Type				Your encoder	
WDG 58A	WDG 58A				WDG 58A	
	Pulses per revolution PPR I/U (PPR):					
5000	2, 5, 10, 15, 20, 24, 25, 30, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 236, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 625, 720, 750, 768, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000, 10000, 12500, 20000, 25000 1 Vss Sin/Cos only 1024, 2048 Other PPRs on request					
	Channels:					
ABN	AB, ABN (SIN: AB)					
	Output circuit					
G24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
	up to 2500	5 - 30	HTL	-	H30	
		5 - 30	HTL inverted	-	R30	
	up to 5000	4.75 - 5.5	TTL	•	G05	
		4.75 - 5.5	TTL	-	H05	
		4.75 - 5.5	TTL, RS422 comp., inverted	•	I05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05	
		10 - 30	HTL	•	G24	
		10 - 30	HTL	-	H24	
		10 - 30	HTL inverted	•	I24	
		10 - 30	HTL inverted	-	R24	
		10 - 30	TTL, RS422 comp., inverted	•	524	
		10 - 30	TTL, RS422 comp., inverted	-	245	
	10000 up to 25000	4.75 - 5.5	TTL	-	F05	
		4.75 - 5.5	TTL, RS422 comp., inverted	-	P05	
		10 - 30	HTL	-	F24	
		10 - 30	HTL inverted	-	P24	
		10 - 30	TTL, RS422 comp., inverted	-	645	
	1024, 2048	4.75 - 5.5	1 VSS sin/cos	-	SIN	

Electrical connections			
	Description	ABN inv. poss.	Order key
Cable: length (2 m standard)			
	axial, shield not connected	•	K2
	axial, shield connected to encoder housing	•	L2
	radial, shield not connected	•	K3
	radial, shield connected to encoder housing	•	L3
Connector: (shield connected to encoder housing)			
	connector, M16x0.75, 5-pin, axial	-	SI5
	connector, M16x0.75, 5-pin, radial	-	SH5
	connector, M16x0.75, 6-pin, axial	-	SI6
	connector, M16x0.75, 6-pin, radial	-	SH6
	connector, M16x0.75, 8-pin, axial	•	SI8
	connector, M16x0.75, 8-pin, radial	•	SH8
	connector, M16x0.75, 12, axial	•	SI12
	connector, M16x0.75, 12, radial	•	SH12
K2	connector, M16x0.75, 7-pin, axial	-	S2
	connector, M16x0.75, 7-pin, radial	-	S3
	connector, M23, 12, axial	•	S4
	connector, clockwise pin count, M23, 12, axial	•	S4R
	connector, M23, 12, radial	•	S5
	connector, clockwise pin count, M23, 12, radial	•	S5R
	connector, MIL, 6-pin, radial	-	S6
	connector, Valve, 4-pin, axial	-	S7
	sensor-connector, M12x1, 4-pin, axial	-	SB4
	sensor-connector, M12x1, 4-pin, radial	-	SC4
	sensor-connector, M12x1, 5-pin, axial	-	SB5
	sensor-connector, M12x1, 5-pin, radial	-	SC5
	sensor-connector, M12x1, 8-pin, axial	•	SB8
	sensor-connector, M12x1, 8-pin, radial	•	SC8
	sensor-connector, M12x1, 12, axial	•	SB12
	sensor-connector, M12x1, 12, radial	•	SC12
Options			
	Description	Order key	
	Without option	Empty	
	Low temperature	ACA	
	Low-friction bearings	AAC	
	Cable length	XXX = Decimeter	

Example Order No.=	WDG 58A	5000	ABN	G24	K2		WDG 58A					Your encoder
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For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
http://www.wachendorff-automation.com/distributors_worldwide.html



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