

Draw-wire system SZG93 WDG incremental



- Exceptionally rugged length sensor
- Measuring range: 0 - 2.500 mm
- Output: incremental signals
- IP65 encoder ready-mounted

www.wachendorff-automation.com/szg93wdginc

The draw-wire encoder SZG93 was developed for use in harsh environments. The various methods of installation mean high flexibility. It can be used even where space is tight, thanks to its compact dimensions.

The SZG93 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 mm up to 2.500 mm

Resolution Measurement ranges:

Various, depending on encoder up to 50 pulses/mm
at 4 x edge evaluation

WDG 40Z with 200 PPR = Resolution: 1 pulses/mm

WDG 40Z with 1000 PPR = Resolution: 5 pulses/mm

WDG 40Z with 2000 PPR = Resolution: 10 pulses/mm

WDG 40Z with 2500 PPR = Resolution: 12,5 pulses/mm

Electrical Output:

2 channels (A follows B) are shifted by 90°.

H24 = 10 VDC up to 30 VDC, pushpull, 40 mA per channel

H05 = 4,75 VDC up to 5,5 VDC, pushpull, 40 mA per channel

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. 0,4 kg

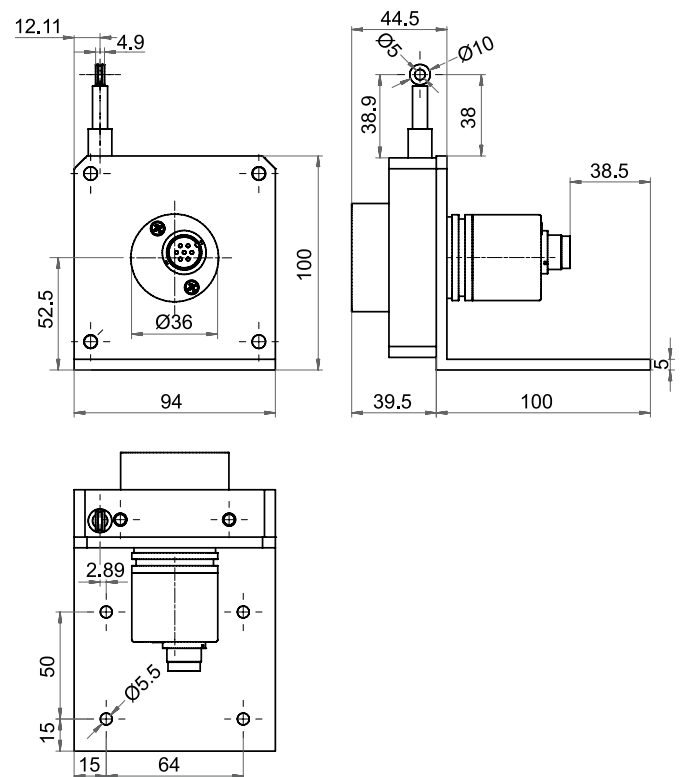
System-unit housing: Glass fiber reinforced ABS plastic

Weight: SZG incl. encoder 0,817 kg

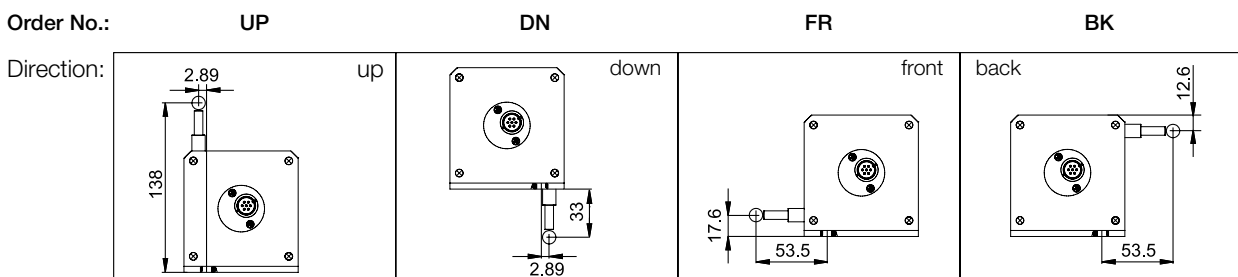
Life expectancy: at least 10 million cycles

Operating temperature: -20 °C up to +80 °C

Storage temperature: -30 °C up to +80 °C



All details in mm and dependent on the encoder configuration.



Example of the order of a Draw-wire system:

SZG93 - 2.500 - N - UP - H24 - 05

- 2500: Draw wire system 2.500 mm measurement range;
- N: nylon coated high-grade steel wire
- UP: wire exit up
- H24: incl. incremental encoder 40Z with channels:
A follows B, signal output: H24 = 10 VDC up to 30 VDC, HTL
- Connections: connector 7-pin, axial
- 05: Resolution 5 pulses/mm

Order number: SZG93 - 2.500 - N - UP - H24 - 05

Position: 1 2 3 xx yy zz

Short description	Position	Part of order number	Description
Type	1	SZG93	Draw wire system, housing 94 mm
Measurement range (MB)	2	2.500	measurement range 2.500 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	H24 = 10 VDC - 30 VDC, HTL H05 = 4,75 VDC - 5,5 VDC, TTL	Channels: A follows B, signal output
Solution *1	zz	01 05 10 12 zz*	1 pulse per mm 5 pulses per mm 10 pulses per mm 12,5 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 01, 05, 10 or 12 you will get a ready-mounted encoder;

Order number: WDG 40Z-ZZZZ-ABN-H24-S2 (pulses/mm):

For resolution 1 pulses/mm = 200, 5 pulses/mm = 1000, 10 pulses/mm = 2000 and 12,5 pulses/mm = 2500 with the following qualities:

Channels: A follows B: 2 channels shifted by 90° plus inverted signals

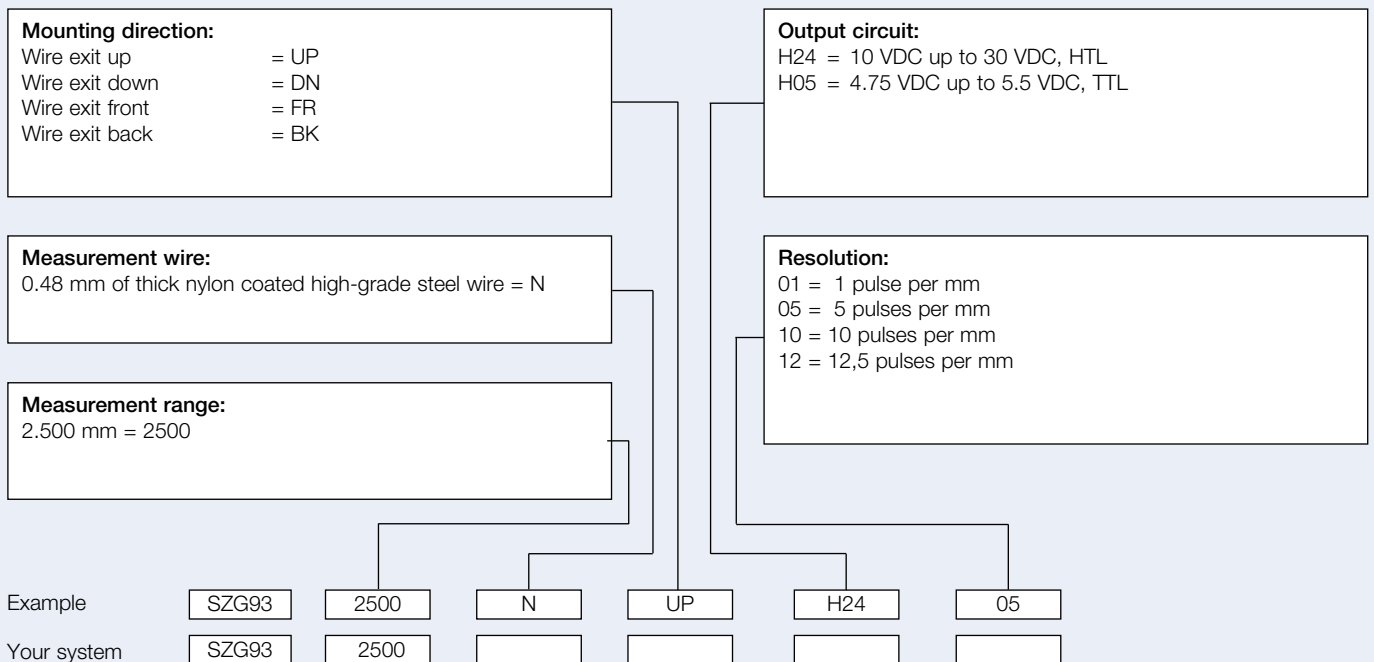
Output: H24: 10 Volt up to 30 Volt, 40 mA push-pull, H05 = 4.75 Volt up to 5.5 Volt, 40 mA push-pull

Connection: connector 7-pin, axial (PIN-arrangement: B=4, A=3, 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 40A your special encoder or call our technical support.

Ordering information:



Montageanleitung Vollwellengeber,

Assembly instructions shaft encoder, Notice de montage codeur rotatif à arbre plein, Instrucciones de montaje encoder ad albero pieno, istruzioni di montaggio encoders de eje saliente.

	WDGI (Stecker , connector, connecteur, conector, spina): -40 °C ... +85 °C (-4 °F ... +176 °F) WDG* + WDGI (Kabel , cable, Câble, Cable, cavo)**: -20 °C ... +80 °C (-4 °F ... +176 °F) Option: * -40 °C ... +80 °C (-40 °F ... +176 °F) ** -40 °C ... +85 °C (-40 °F ... +185 °F) 1Vss (1Vpp): -10 °C ... +70 °C (14 °F ... +158 °F) 58T: -10 °C ... +70 °C (58T: +14 °F ... +158 °F)		-30 °C...+80 °C (-22 °F...+176 °F)
	Montage nur qualifiziertes Personal , Assembly only qualified personnel, Montage par qualifié personnel, Montaggio solo personale qualificato, Montaje solamente personal cualificado		
Sicherheitsmassnahmen/safety instructions: Die Produkte dürfen nur in industrieller Umgebung und im NICHT sicherheitsrelevanten Bereich eingesetzt werden. The products are only designed and produced for use in industrial environments and NOT for use in safety related applications.			
	DIN EN 100015-1		

Kabel ø cable, Câble, Cable, cavo	R1	R2	Temperatur Temperature, Température, Temperatura, Temperatura
≤ 7 mm	31,5 mm	94,5 mm	T > -20 °C (-4 °F)
> 7 mm	41,5 mm	124,5 mm	T > -20 °C (-4 °F)
≤ 7 mm	46,5 mm	139,5 mm	T > -40 °C (-40 °F)
> 7 mm	62,3 mm	186,9 mm	T > -40 °C (-40 °F)

58B
58D
58K
58S
58T
58V
63B
70B
90B

40A
50B
58A
58B
58C
58D
58K
58T
63B

24A 58V
24C 63B
40A 70B
50B 90B
58A
58B
58C
58D
58K
58S
58T

40S
53S
53V

40A
58B
58D
58K
58S
58T
58V

63Q
67Q
115T
115M

58A + MG58A

Standard (no IP67)	F _r max.	F _a max.
24A/C, 40A/S, 58K	80 N	50 N
50B	120 N	70 N
53S, 53V	20 N	10 N
58A	125 N	70 N
58B, 58T, 63B/Q	220 N	120 N
WDG58D	400 N	400 N
WDGI58D	500 N	500 N
70B, 90B	200 N	150 N
115T/M, 58C	200 N	120 N
58S, 58V	100 N	100 N

Gewinde (8.8) Screw thread, Filet, Rosca, filetto	Empfohlenes Anzugsdrehmoment Recommended starting torque Moment de rotation recommandé appliqué à l'écrou Par de apriete recomendado coppia di spunto consigliata
M3	1 Nm
M4	2 Nm
M5	3 Nm
M6	6 Nm
Mutter , Screw nut, écrou, Tuerca, dado, M20x1,5	8 Nm

Frühwarnausgang Early-warning output Sortie d'alerte Salida de advertencia prematura uscita di preavvertimento	IRLED	IRLED
Schaltung Circuit Couplage Commutación collegamento	G24, I24, G05, I05, 524	high low

Abstand zu Störquellen!
Distance to sources of interference!
Distance aux source des parasites!
Distancia a las fuentes de interferencias!
Distanza dalle fonti di disturbo!

*Nur, only, seulement, solamente, soltanto G24, H24, I24, R24, F24, P24, R30:
hat Verpolschutz, ist kurzschlussfest; Protection against polarity reversal, short circuit protection; Protección contro l'inversione di polarità Protection court-circuit; Protegido contra inversión de polaridad, protección contra cortocircuito; protezione contro inversione di polarità, protezione contro corto circuito

	L _{MAX}
	100m
	150m

Schaltung Circuit Couplage Commutación collegamento	Stecker, connector, Fiche, Connector, spina						M8- Fiche de palpeur, Conector de sonda, spina sensore	Kabel, cable, Câble, Cable, cavo																
	S15 axial, SH5 radial, 5-pin	S16 axial, SH6 radial, 6-pin	S2 axial, S3 radial, 7-pin	S8 axial, SH8 radial, 8-pin	S112 axial, SH12 radial, 12-pin	S4 axial, S4R axial, S5 radial, S5R radial, 12-pin		S7 axial, 4-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	ACA: 24C 40A/S 40E	ACA: 58, 63, 67, 70, 115	58SV							
	F/H/05 F/H24 H30	G/F/H/05 G/F/H24 H30	F/H/05 F/H24 H30	P/R05 P/R24 245/645 SIN R30	G/F/H05 G/F/H24 H30 SIN, SIF R30	I/P/R05 I/P/R24 245, 524 645 SIN, SIF R30	G/F/H/05 G/F/H24 H30	G/F/H/05 G/F/H24 H30	F/H/05 F/H24 H30	F/H/05 F/H24 H30	F/H/05 F/H24 H30	F05 H05 P05 P24 H24 R24 H30 R30 s 645	S i n u s 645 R30	G/F05/ I/P/R05 H05 I/P/R24 G/F24/ 245 H24 524 H30 645 R30	R30 M05 I/R/P05 M30 I/R/P24 H24 245 R24 524 N05 645 R30	M05 I/R/P05 M30 I/R/P24 H24 245 R24 524 N05 645 R30	SIN SIF 245 524 645 R30	I/R/P05 I/R/P24 245 524 645 R30						
Minus U-	1	6	1	1	K/L	10	A	1	3	3	1	1	1	3	3	3	3	WH	WH	WH	WH	WH		
Plus U+	2	1	2	2	M/B	12	F	2	1	1	2	2	2	1	1	1	1	BN	BN	BN	BN	BN		
A	3	2	3	3	E	5	C	3	4	4	3	3	4	4	4	4	4	GN	GN	GN	GN	GN		
B	4	4	4	4	H	8	B	4	2	4	4	4	5	6	6	6	6	YE	YE	YE	YE	YE		
N	5	3	5	5	C	3	D	-	5	5	5	7	8	8	8	8	8	GY	GY	GY	GY	GY		
Frühwam- ausgang*1	-	5	6	-	G	11	E	-	-	-	-	-	5	5	5	5	5	PK	PK	PK	PK	PK		
A inv.	-	-	-	6	F	6	-	-	-	-	-	6	4	-	9	9	9	RD	RD	RD	RD	RD		
B inv.	-	-	-	7	A	-	-	-	-	-	-	7	6	-	7	7	7	PK	BK	BK	BU	PK		
N inv.	-	-	-	8	D	-	-	-	-	-	-	8	8	-	10	10	10	BU	VT	VT	VT	VT		
n. c.	-	6, 7, 8	7	-	J	1, 2, 4, 6, 7, 9	-	-	-	-	-	6,	2, 7, 8, 9, 10, 11, 12	-	-	-	-	-	-	-	-	-	-	
Schirm*2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

***1 Frühwamausgang nur bei**
Early-warning output only for
Sortie d'alerte précoce
Salida de advertencia prematura
uscita di preavvertimento
G24, I24, G05, I05, 524, SIF (80H/100H/G/I/K)

Steckergehäuse aus Kunststoff (S7)
Plastic connector housing (S7)
Boîtier de connexion en matière plastique (S7)
Caja de conector de plástico (S7)
scatola prese in plastica (S7)

***2 Schirm**
Shield
Ecran
Malla
Schermo

$\frac{t_L}{T} = \frac{t_H}{T} = 50\% \pm 7\%$
 $360^\circ eI = \frac{360^\circ \text{mech}}{n \text{ Imp.}}$

alle % bezogen auf 360°el
all % refer to 360°el
tous les % se réfèrent à 360°el
todos los % se refieren a 360°el
tutta la % riferita a 360°el

Bemerkungen
Remarks
Notas
Osservazioni

Steckergehäuse/Schirm mit Gebergehäuse leitend verbunden. (Nicht S7, K1, K2, K3)
Connector housing/shield electrically connected to encoder housing (not S7, K1, K2, K3, T3)
Boîtier de connexion/Ecran avec boîtier d'émetteur liés de manière conductrice (No S7, K1, K2, K3)
Caja de conector/Malla conectada en conductancia con caja de transmisor (No S7, K1, K2, K3)
Scatola prese/Schermo con scatola trasmettitore collegata da condurre (No S7, K1, K2, K3)

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Other countries, please contact your distributor.
Autres pays, veuillez contacter votre distributeur.
Otros países, rogamos contactar a su distribuidor.
Per gli altri paesi si prega di contattare il vostro distributore.

U _B	I _{supply}	Output	I _{outmax}
4,75...5,5 VDC	≤100mA	1V peak to peak +/- 25%	40 mA N05, N24, N30, M05, M24, M30 = 30 mA
	Ohne Last Without load resistance Sans charge Sin carga senza carico	Pro Kanal Per channel Par canal Por canal Per canale	
Bemerkungen Remarks Notas Osservazioni	Ohne Last Without load resistance Sans charge Sin carga senza carico	Symétrisch an Symetrically at Symétrique à Simétrico en simmetrico su Z _i =120 Ohm	