

## Draw-wire system SZG122



### Typical areas of application include:

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

### Measurement ranges:

0 cm up to 1000 cm, 0 cm up to 1500 cm, 0 cm up to 2000 cm,  
0 cm up to 2500 cm, 0 cm up to 3000 cm, 0 cm up to 3800 cm  
and 0 cm up to 4300 cm

### Resolution Measurement ranges:

WDGI 58A mit 1000 PPR = Resolution: 3.23 pulses/mm  
2000 PPR = Resolution: 6.46 pulses/mm  
5000 PPR = Resolution: 16.13 pulses/mm

### Electrical Output

2 channels (AB) are shifted by 90°. Pulses 10 VDC up to 30 VDC,  
push-pull, 40 mA and zero pulse per rotation = G24  
2 channels (AB) are shifted by 90°. Pulses 4.75 VDC up to 5.5 VDC,  
push-pull, 40 mA and zero pulse per rotation + inverted signals = I05

**Deviation:** Less than 0.02 % of the final value.

### Measuring wire:

Ø	Material	Measurement range
0.86 mm	thick nylon coated high-grade stainless steel wire	0 cm up to 1.000 cm, 0 cm up to 1.500 cm
0.48 mm	thick nylon coated high-grade stainless steel wire	0 cm up to 2.000 cm, 0 cm up to 2.500 cm, 0 cm bis 3.000 cm
0.38 mm	steel wire	0 cm up to 3.800 cm 0 cm up to 4.300 cm

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

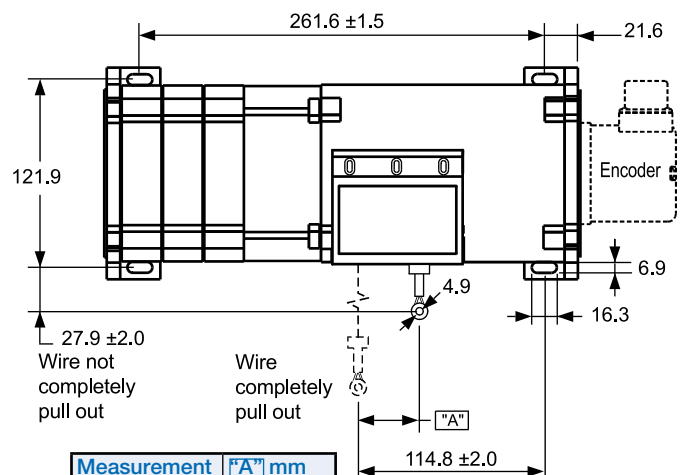
- Exceptionally rugged length sensor
- Measuring range 0 cm up to 1000 cm to 0 cm up to 4300 cm
- Output: incremental signals
- IP65 encoder ready-mounted

[www.wachendorff-automation.com/szg122wdginc](http://www.wachendorff-automation.com/szg122wdginc)

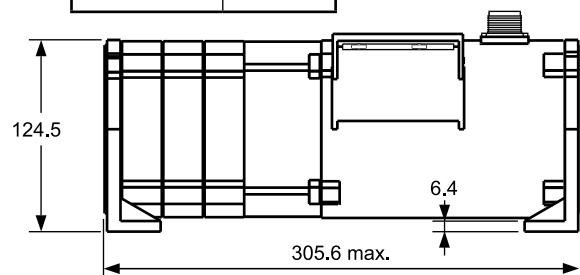
The draw-wire encoder SZG 122 was developed for use in harsh environments. With its 7 different lengths, it can be put into service very economically. The various methods of installation mean high flexibility. It can be used even where space is tight, thanks to its compact dimensions.

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 WDGI58A. The encoder is already installed.



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.

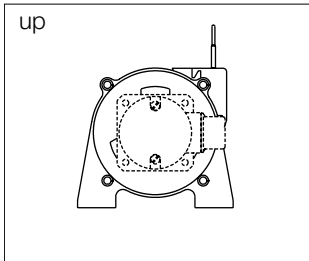
**Order number:** UP

DN

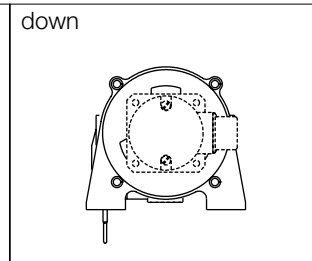
FR

BK

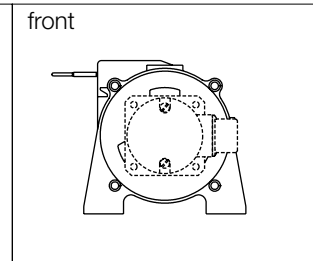
Direction: up



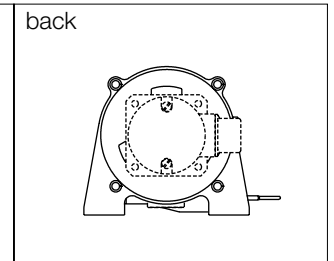
down



front



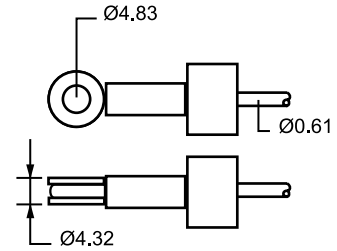
back



**Example of the order of a Draw-wire system:**

SZG122 - 2500 - N - UP - G24 - 3

- 2500: Draw wire system with 2500 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	Description
<b>Type</b>	1	SZG122	Draw wire system, housing 122 mm.
<b>Measurement range (MB)</b>	2	1000 1500 2000 2500 3000 3800 4.300	Measurement range 1000 cm Measurement range 1500 cm Measurement range 2000 cm Measurement range 2500 cm Measurement range 3000 cm Measurement range 3800 cm Measurement range 4.300 cm
<b>Measurement wire</b>	3	N	thick nylon coated high-grade stainless steel wire or stainless steel wire
<b>Mounting direction</b>	xx	UP DN FR BK	Wire exit up Wire exit down Wire exit front Wire exit back
<b>Output</b>	yyy	Draw wire system, housing 122 mm.	Channels ABN, signal output Channels: ABN, $\overline{ABN}$ , signal output
<b>Solution *1</b>	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 WDGI 58 A type. This encoder is assembled by us.

zz\* mounted encoder WDGI 58A - 06 - 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 WDGI 58A 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 VDC up to 30 VDC, HTL  
 I05 = 4.75 VDC up to 5.5 VDC, TTL, RS422 comp.

**Measuring wire:**

Thick nylon coated high-grade stainless steel wire or stainless steel wire = N

**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 WDGI 58A Typs. = zz

**Measurement range:**

1000 cm = 1000                      3000 cm = 3000  
 1500 cm = 1500                      3800 cm = 3800  
 2000 cm = 2000                      4300 cm = 4300  
 2500 cm = 2500

Example      SZG122   2500   N   UP   G24   03

Your system   SZG122

**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 ( <b>Stecker</b> , connector, connecteur, conector, spina): -40 °C ... +85 °C (-4 °F ... +176 °F) WDG* + WDGI ( <b>Kabel</b> , 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)
	<b>Montage nur qualifiziertes Personal</b> , Assembly only qualified personnel, Montage par qualifié personnel, Montaggio solo personale qualificato, Montaje solamente personal cualificado		
<b>Sicherheitsmassnahmen/safety instructions:</b> 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 <sub>r</sub> max.	F <sub>a</sub> 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
<b>Mutter</b> , 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
<b>Schaltung</b> 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 <sub>MAX</sub>
	100m
	150m

Schaltung Circuit Couplage Commutación collegamento	Stecker, connector, Fiche, Connector, spina										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	S12 axial, SH12 radial, 12-pin	S4 axial, S4R axial, S5 radial, S5R radial, 12-pin	S6 radial, 6-pin	S7 axial, 4-pin	SK6 axial, 6-pin	SB4 axial, SC4 radial, 4-pin	F/H/05 F/H24 H30	SB5 axial, SC5 radial, 5-pin	SB8 axial, SC8 radial, 8-pin	SB12 axial, SC12 radial, 12-pin	K1/K7/L7 K2/L2 axial, K3/L3 radial T3 tangential	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	G/F/H/05 G/F/H24 H30	F/H05 F/H24 H30	P/R05 P/R24 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/H05 G/F/H24 H30	F/H/05 F/H24 H30	F05 H05 P24 H24 H30	R05 P24 R24 R30 s	F/H/05 F/H24 H30	F05 H05 P24 H24 H30	G/F05/ I/P/R05 H05 I/P/R24 G/F24/ 245 H24 245 H30 524 R30 645	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	I/R/P05 I/R/P24 245 524 645 R30			
Minus U-	1	6	1	1	K/L	10	A	1	3	3	3	1	1	3	WH	WH	WH	WH	WH	
Plus U+	2	1	2	2	M/B	12	F	2	1	2	1	2	1	1	BN	BN	BN	BN	BN	
A	3	2	3	3	E	5	C	3	4	3	4	3	4	4	GN	GN	GN	GN	GN	
B	4	4	4	4	H	8	B	4	4	4	4	4	4	6	YE	YE	YE	YE	YE	
N	5	3	5	5	C	3	D	-	5	5	7	8	8	8	GY	GY	GY	GY	GY	
Frühwam- ausgang*1	-	5	6	-	G	11	E	-	-	-	-	-	5	5	PK	PK	PK	PK	PK	
A inv.	-	-	-	6	F	6	-	-	-	-	-	-	4	9	RD	RD	RD	RD	RD	
B inv.	-	-	-	7	A	1	-	-	-	-	-	-	6	7	PK	BK	BK	BU	PK	
N inv.	-	-	-	8	D	4	-	-	-	-	-	-	8	10	BU	VT	VT	VT	VT	
n. c.	-	7	6, 7, 8	-	J	1, 2, 4, 6, 7, 9	-	-	6	6	6	6	2, 7, 9, 10, 11, 11, 12	2	-	-	-	-	-	
Schirm*2	-	-	-	-	A, D, F, J	2, 9, 11	-	-	-	-	-	-	12	-	-	-	-	-	-	-

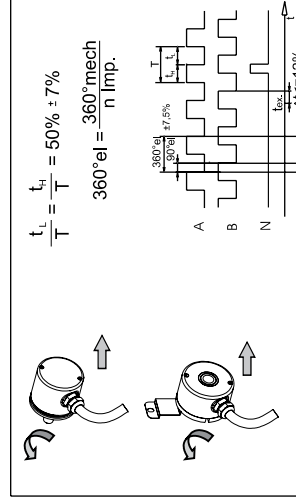
**\*1 Frühwamausgang nur bei**  
Early-warning output only for  
Sortie d'alerte précoce  
Salida de advertencia prematura  
uscita di preavvertimento  
**G24, I24, G05, I05, 524, SIF (80H/100H/G/I/K)**

**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)

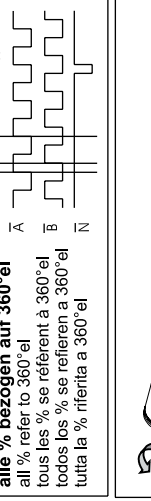
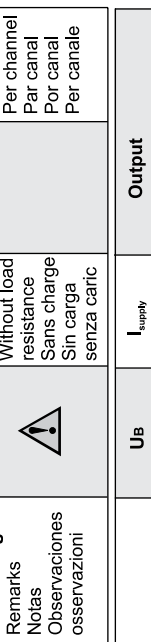
**\*2 Schirm**  
Shield  
Ecran  
Malla  
Schermo

**WH: weiss, white, blanc, bianco, bianco**  
**BN: braun, brown, brun, marron, marrone**  
**GN: grün, green, vert, verde, verde**  
**YE: gelb, yellow, jaune, amarillo, giallo**  
**GY: grau, grey, gris, gris, grigio**  
**PK: rosa, pink, rose, rosa, rosa**  
**RD: rot, red, rouge, rojo, rosso**  
**BK: schwarz, black, noir, negro, nero**  
**BU: blau, blue, bleu, azul, blu**  
**VT: violett, violet, violet, violeta, violetto**  
**Litze: Litze, Flex, Toron, Cordón, Cavetto**

U <sub>B</sub>	I <sub>supply</sub>	Output	I <sub>outmax</sub>
R30, H30, N30, M30	≤ 70 mA	H > U <sub>B</sub> - 10% U <sub>B</sub> L < 2.5VDC	40 mA
G24, H24, F24, I24, R24, N24, M24, P24	N05, N24, N30, M05, M24, M30	H > U <sub>B</sub> - 2.5VDC L < 2.5VDC	N05, N24, N30, M05, M24, M30 = 30 mA
245, 524, 645	≤ 40 mA	H > 2.5VDC L < 1.2VDC	
G05, H05, F05, I05, R05, N05, M05, P05	P05, P24, F05, F24, 645	H > 2.5VDC L < 0.5VDC	Pro Kanal Per channel Par canal Por canal Per canale
Bemerkungen Notas Observaciones osservazioni	Ohne Last Without load resistance Sans charge Sin carga senza carico		



**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)



**WACHENDORFF**  
www.wachendorff-automation.de  
www.wachendorff-automation.com

Technical Support  
Germany:  
Tel.: +49 (0)67 22 / 99 65 131  
Fax: +49 (0)67 22 / 99 65 70  
eMail: support-wd@wachendorff.de

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.

**Bemerkungen**  
Remarks  
Notas  
Observaciones  
osservazioni

**Ohne Last**  
Without load  
resistance  
Sans charge  
Sin carga  
senza carico

**Symétrisch an**  
Symétrically at  
Symétrique à  
Simétrico en  
simmetrico su

Z<sub>i</sub> = 120 Ohm