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Draw-wire system SZG122

- 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/szg122

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 WDG58A. The encoder is already installed.

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:
WDG 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:
0.86 mm of thick nylon coated high-grade steel wire.

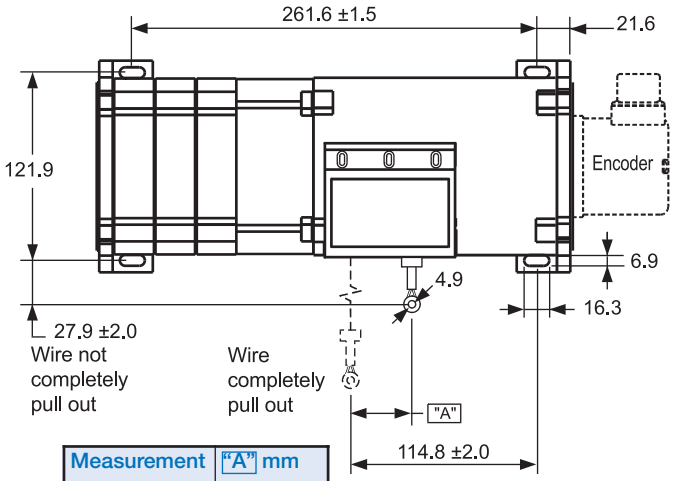
Wire connection: eye
max. wire speed: 1.5 m/sec.

System-unit housing: anodised aluminium

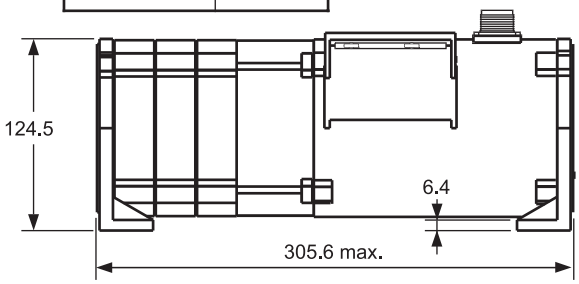
Weight: SZG incl. encoder max. 6.5 kg.

Life expectancy: At least 10 million cycles.

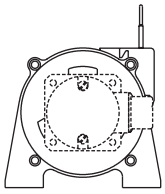
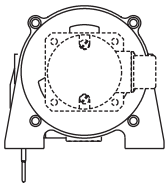
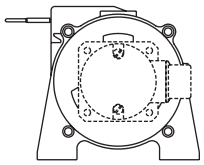
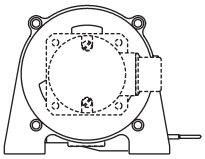
Operating temperature: -20 °C up to +70 °C.
Storage temperature: -30 °C up to +80 °C.



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



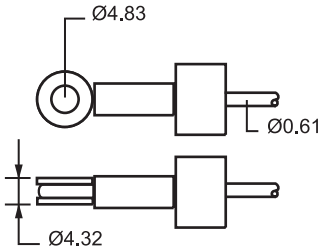
All details in mm and dependent on the encoder configuration.

Order number:	UP	DN	FR	BK
Direction:	up 	down 	front 	back 

WACHENDORFF
Automation GmbH & Co. KG

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 yyy zz**

Short description	Position	Part of order number	Description
Type	1	SZG122	Draw wire system, housing 122 mm.
Measurement range (MB)	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
Measurement wire	3	N	0.86 mm of thick nylon coated high-grade steel wire
Mounting direction	xx	UP DN FR BK	Wire exit up Wire exit down Wire exit front Wire exit back
Output	yyy	Draw wire system, housing 122 mm.	Channels ABN, signal output Channels: ABN, $\overline{ABN}$, signal output
Solution *1	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 WDG 58 A type. This encoder is assembled by us.

zz* mounted encoder WDG 58A - 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 WDG 58A your special encoder.

Ordering information:

Mounting direction
Wire exit up = UP
Wire exit down = DN
Wire exit front = FR
Wire exit back = BK

Measuring wire:
0.86 mm of thick nylon coated high-grade steel wire = N

Measurement range:
1000 cm = 1000
1500 cm = 1500
2000 cm = 2000
2500 cm = 2500
3000 cm = 3000
3800 cm = 3800
4300 cm = 4300

Output circuit:
G24 = 10 VDC up to 30 VDC, HTL
I05 = 4.75 VDC up to 5.5 VDC, TTL, RS422 comp.

Resolution:
3 = 3.23 Impulse pro mm
6 = 6.46 Impulse pro mm
16 = 16.13 Impulse pro mm

You specify another encoder, please use the order number of the WDG 58A Typs. = zz

Example	SZG122	2500	N	UP	G24	03
Your system	SZG122					

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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.

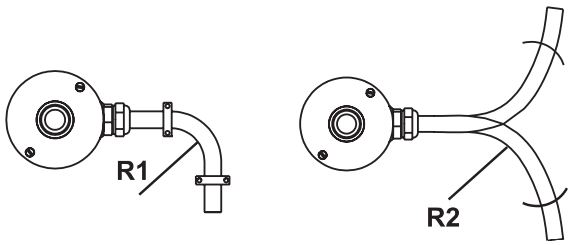
°C
(°F)

-20 °C ... +80 °C / 1Vss: -10 °C ... +70 °C
(-4 °F ... +176 °F / 1 Vss: 14 °F ... +158 °F)
58T: -10 °C ... +70 °C
(58T: +14 °F ... +158 °F)
Option: -40 °C ... +80 °C
(-40 °F ... +176 °F)

-30 °C...+80 °C
(-22 °F...+176 °F)

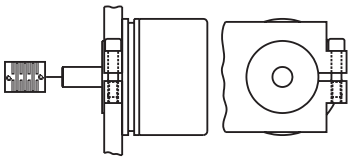
Montage nur qualifiziertes Personal
Assembly only qualified personnel
Montage pair qualifié personnel
Montaggio solo personale qualificato
Montaje solamente personal cualificado

DIN EN 100015-1

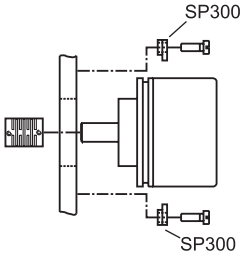


Kabel ø cable, Câble, Cable, cavo	R1	R2	**Temperatur** Temperature, Température, Temperatura, Temperatura
≤ 7 mm	31,5 mm	94,5 mm	T > -20 °C (-4 °F)
> 7 mm	41,5 mm	124,5 mm	T > -20 °C (-4 °F)
≤ 7 mm	46,5 mm	139,5 mm	T > -40 °C (-40 °F)
> 7 mm	62,3 mm	186,9 mm	T > -40 °C (-40 °F)

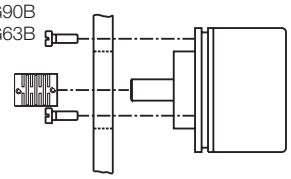
WDG58B
WDG58D
WDG58K
WDG58S
WDG58T
WDG58V
WDG63B
WDG90B



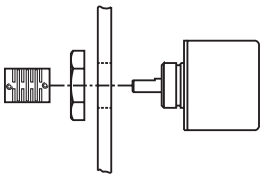
WDG40A
WDG50B
WDG58A
WDG58B
WDG58C
WDG58D
WDG58K
WDG58T
WDG63B



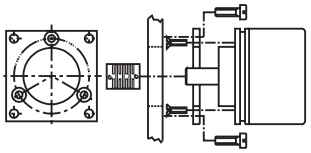
WDG24A WDG58V
WDG24C WDG90B
WDG40A WDG63B
WDG50B
WDG58A
WDG58B
WDG58C
WDG58D
WDG58K
WDG58S
WDG58T



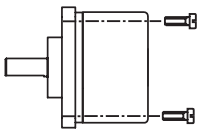
WDG40S
WDG53S
WDG53V



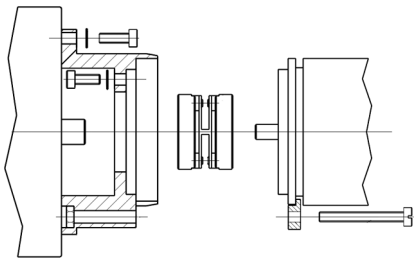
WDG40A
WDG58B
WDG58D
WDG58K
WDG58S
WDG58T
WDG58V



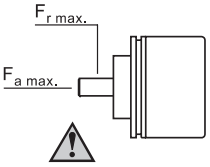
WDG63Q
WDG67Q
WDG115T
WDG115M



WDG58A + MG58A

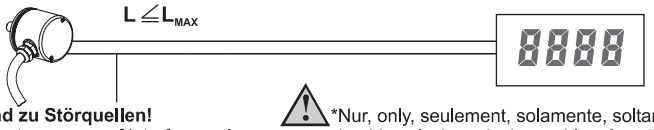


Standard (no IP67)	F_r max.	F_a max.
WDG24A/C, WDG40A/S, WDG58K	80 N	50 N
WDG50B	120 N	70 N
WDG53S, WDG53V	20 N	10 N
WDG58A	125 N	70 N
WDG58B, WDG58T, WDG63B/Q	220 N	120 N
WDG58D	400 N	400 N
WDG90B	200 N	150 N
WDG115T/M, WDG58C	200 N	120 N
WDG58S, WDG58V	100 N	100 N



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 Conmutación collegamento	**G24, I24, G05, I05, 245**	**high**	**low**

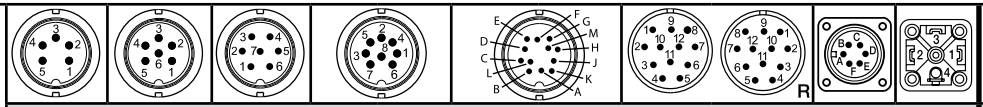


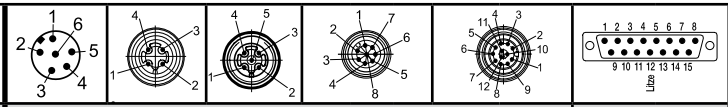
	L_{MAX}
	100m
	150m

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

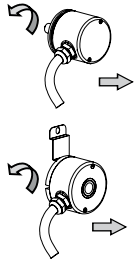
*Nur, only, seulement, solamente, soltanto G24, H24, I24, R24, F24, P24, R30, M24: hat Verpolschutz, ist kurzschlussfest; Protection against polarity reversal, short circuit protection; Protecion contro l´inversion de polarité Protection court-circuit; Protegido contra inversión de polaridad,proteccíon contra cortocircuito; protezione contro inversione di polarità, protezione contro corto circuito

19.11.2010 Angaben ohne Gewähr, Irrtümer und Änderungen vorbehalten. Information not warranted. Errors and modifications excepted. Spécifications sous réserve d'erreur. Sauf erreur ou omission. Indicaciones sin garantía. Se reserva el derecho de error y modificación. Indicazioni senza garanzia. Salvo errori e modifiche. Artikelnummer, Item number, Numéro d'article, Número de artículo : BAWDGMAV00_**09**



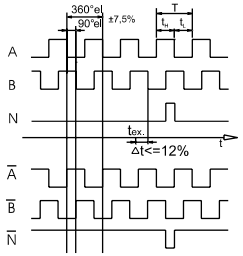


	Stecker, connector, Fiche, Conector, spina											M8- : M12-Sensorstecker, sensor-connector, Fiche de palpeur, Conecto de sonda, spina sensore								DSUB		Kabel, cable, Câble, Cable, cavo				WDG 58S 58V
	SI5 axial, SH5 radial, 5-pin	SI6 axial, SH6 radial, 6-pin	S2 axial, S3 radial, 7-pin	SI8 axial, SH8 radial, 8-pin		SI12 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	SB5 axial, SC5 radial, 5-pin	SB8 axial, SC8 radial, 8-pin			SB12 axial, SC12 radial, 12-pin		SD15 radial 15-pin		K2/L2 axial; K3/L3 radial K1/K7/L7				
Schaltung Circuit Couplage Conmutación collegamento	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	I/P/R05 I/P/R24 245 645 SIN R30	G/F/H05 G/F/H24 H30	I/P/R05 I/P/R24 245 645 SIN R30	G/F/H/05 G/F/H24 H30	F/H/05 F/H24 H30	M05 M24 M30	F/H/05 F/H24 H30	F/H/05 F/H24 H30	F05 H05 F24 H24 H30	P05 R05 P24 R24 R30	Sinus	G/F05/ H05 G/F24/ H24 H30	I/P/R05 I/P/R24 245 645 R30	G/F/H05 G/F/H24 H30	I/P/R05 I/P/R24 245 645 SIN R30	G/F/H/05 G/F/H24 H30	R30 M05 M24 M30	I/R/P05 I/R/P24 245 645 R30	Sinus	I/R/P05 I/R/P24 245 645 R30
Minus U-	1	6	1	1	1	K / L	K / L	10	10	A	1	3	3	3	1	1	1	3	3	4	4	WH	WH	WH	WH	WH
Plus U+	2	1	2	2	2	M / B	M / B	12	12	F	2	2	1	1	2	2	2	1	1	3	3	BN	BN	BN	BN	BN
A	3	2	3	3	3	E	E	5	5	C	3	4	2	4	3	3	3	4	4	1	1	GN	GN	GN	GN	GN
B	4	4	4	4	4	H	H	8	8	B	4	5	4	2	4	4	5	6	6	5	5	YE	YE	YE	GY	YE
N	5	3	5	5	5	C	C	3	3	D	-	1	-	5	5	5	7	8	8	7	7	GY	GY	GY	BK	GY
Frühwarn-ausgang*1	-	5	6	-	-	G	G	11	11 / Sin 7	E	-	-	-	-	-	-	-	5	5	14	14	PK	-	PK	RD	PK
A inv.	-	-	-	-	6	-	F	-	6	-	-	-	-	-	-	6	4	-	9	-	2	-	RD	RD	YE	RD
B inv.	-	-	-	-	7	-	A	-	1	-	-	-	-	-	-	7	6	-	7	-	6	-	PK	BK	PK	BU
N inv.	-	-	-	-	8	-	D	-	4	-	-	-	-	-	-	8	8	-	10	-	8	-	BU	VT	VT	VT
n. c.	-	-	7	6, 7, 8	-	A, D, F, J	J	1, 2, 4, 6, 7, 9	2, 7, 9 / Sinus 2, 9, 11	-	-	6	-	-	6, 7, 8	-	-	2, 7, 9, 10, 11, 12	2, 11, 12	2, 6, 8, 9, 10, 11, 13, 15	9, 10, 11, 13, 15	-	-	-	-	-
Schirm*2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	Litze, Flex, Toron, Cordón, Cavetto				



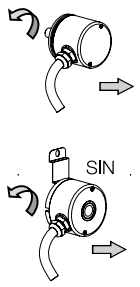
$$\frac{t_L}{T} = \frac{t_H}{T} = 50\% \pm 7\%$$

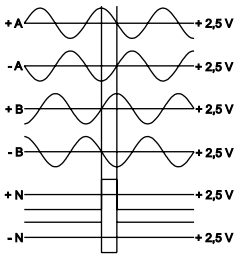
$$360°el = \frac{360°mech}{n\ Imp.}$$



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

	U_B	I_{supply}	Output	$I_{OUT,max}$
R30, H30, M30	5-30 VDC	≤70mA M05, M24, M30 ≤40mA	H>U_B-10% U_B L<2,5VDC	40mA M05, M24, M30 = 30mA
G24, H24, F24 I24, R24, M24, P24	10...30 VDC		H>U_B-2,5VDC L<2,5VDC	
245, 645			H>2,5VDC L<1,2VDC	
G05, H05, F05, I05, R05, M05, P05	4,75...5,5VDC		H>2,5VDC L<0,5VDC	
Bemerkungen Remarks Notas Observaciones osservazioni	⚠	**Ohne Last** Without load resistance Sans charge Sin carga senza caric		**Pro Kanal** Per channel Par canal Por canal Per canale





	U_B	I_{supply}	Output
SIN	4,75...5,5 VDC	≤100mA	1V peak to peak +/- 25%
Bemerkungen Remarks Notas Observaciones osservazioni	⚠	**Ohne Last** Without load resistance Sans charge Sin carga senza carico	**Symetrisch an** Symetrically at Symétrique à Simétrico en simmetrico su Z_L=120 Ohm

*1 **Frühwarnausgang nur bei**
Early-warning output only for
Sortie d'alerte précoce
Salida de advertencia prematura
uscita di preavvertimento
G24, I24, G05, I05, 245, SIN (80H/100H)

*2 **Schirm**
Shield
Ecran
Pantalla
Schermo

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)

WH: weiss, white, blanc, blanco, bianco
BN: braun, brown, brun, marrón, 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

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

WACHENDORFF

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