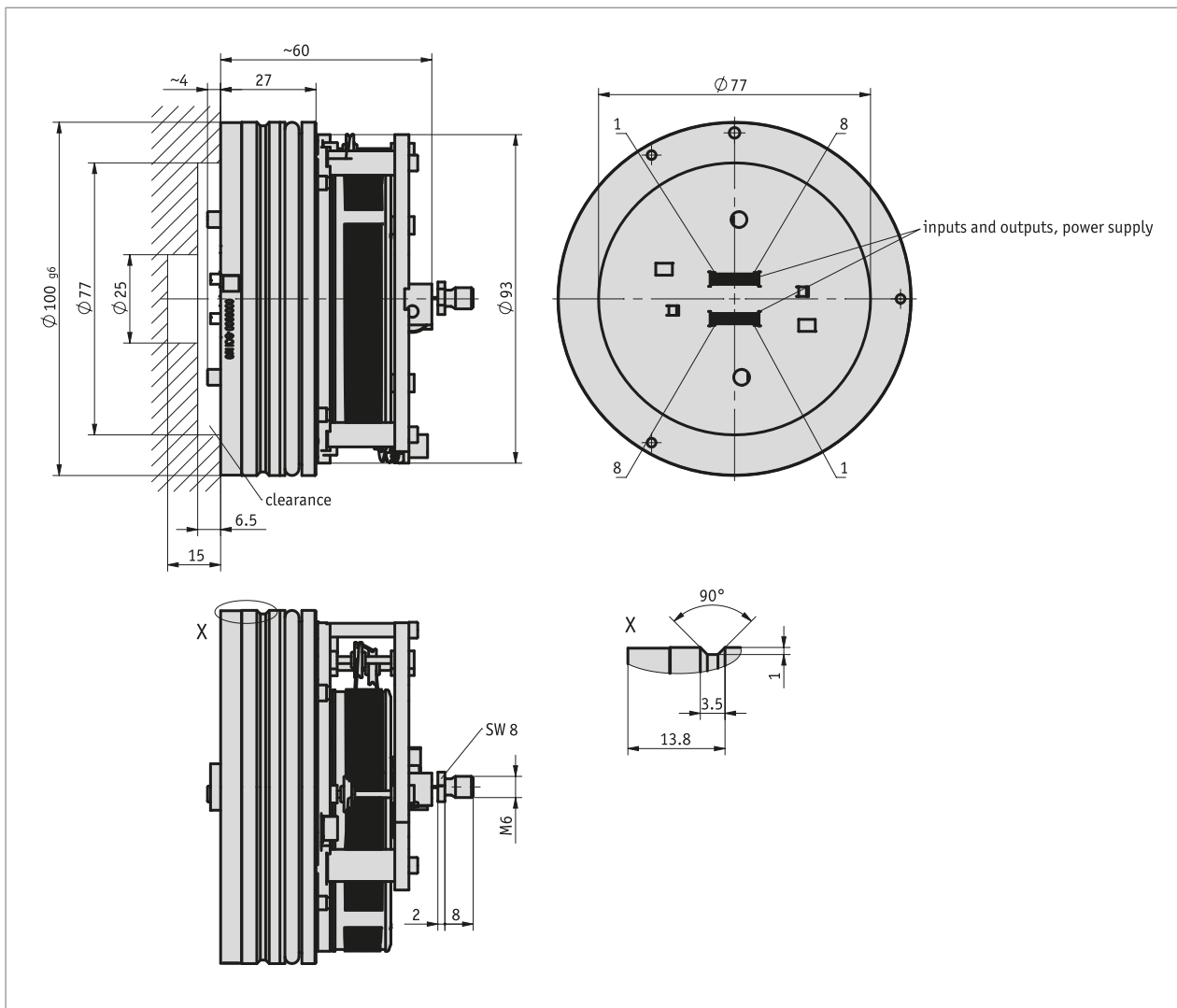
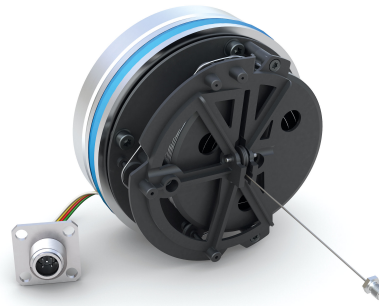


Draw-wire encoder SGH50

Position sensor for hydraulic cylinders with measuring lengths up to 5000 mm

Profile

- Measuring range 0 ... 5000 mm (196.85 inches)
- Absolute measuring system
- Pressure-resistant up to 350 bar, pressure peaks up to 450 bar
- High flexibility, thanks to teach-in to any measuring length
- Redundant interfaces (CAT3) available
- Safety version usable up to Performance Level d
- Analog, CANopen, SAE J1939, CANopen Safety interfaces
- with PURE.MOBILE technology



Mechanical data

Feature	Technical data	Additional information
Flange	aluminum	sealing ring (HNBR)
Housing	plastic	PA66
Wire design	ø0.45 mm	rustproof stainless steel
Extension force	≥4 N	
Acceleration	≤24 m/s ²	

Electrical data

■ Analog interface

Feature	Technical data	Additional information
Operating voltage	9 ... 32 V DC	ambient condition MH, at output 0 ... 5 V, 0.5 ... 4.5 V, 0.25 ... 4.75 V, 1.0 ... 4.9 V, reverse polarity protected
	12 ... 32 V DC	ambient condition MH, at output 0 ... 10 V, reverse-polarity protected
	12 ... 32 V DC	ambient condition MH, at output 0 ... 20 mA, 4 ... 20 mA, but UB > Uload +2.0 V, reverse-polarity protected
	24 V DC ±20 %	ambient condition CE, reverse polarity protected
Current consumption	<40 mA at 24 V DC	per encoder
	<80 mA at 12 V DC	per encoder
Power input	<1 W	without load, per encoder
Parameter storage	10 ⁵ cycles	also applies to calibration operations
Digital inputs	4	limit inputs (redundant)
	2	limit inputs (not redundant)
Input signal level high	>8.4 V	
Input signal level low	<2.8 V	
Output voltage	0 ... 10 V	load current <1 mA
	0 ... 5 V	load current <1 mA
	0.5 ... 4.5 V	load current <1 mA
	0.25 ... 4.75 V	load current <1 mA
	1 ... 4.9 V	load current <1 mA
Output current	0 ... 20 mA	load ≤500 Ω
	4 ... 20 mA	load ≤500 Ω
Linearity tolerance	±0.25 %	5000 mm measuring length, ±0.5% output value range ≤15 mV
Starting time	<150 ms	
Type of connection	connector system	KV1H accessory

■ CANopen interface

Feature	Technical data	Additional information
Operating voltage	9 ... 32 V DC	ambient condition MH, reverse polarity protected
	24 V DC ±20 %	ambient condition CE, reverse polarity protected
Current consumption	<40 mA at 24 V DC	per encoder
	<60 mA at 12 V DC	per encoder
Power input	1 W	per encoder
Parameter storage	10 ⁵ cycles	also applies to calibration operations
Linearity tolerance	±0.25 %	5000 mm measurement length
Interface	ISO 11898-1/2, not electrically isolated	CANopen, CiA 301, CiA 305, CiA 406
Address	1 ... 127	Node ID, via SDO or Layer Setting Service (LSS)
Baud rate	20 kbit/s	
	50 kbit/s	
	125 kbit/s	
	250 kbit/s	
	500 kbit/s	
	800 kbit/s	
Cycle time	1 Mbit/s	
Cycle time	1.5 ms, typical	
Starting time	<150 ms	
Type of connection	connector system	KV1H accessory

■ CANopen Safety interface

Feature	Technical data	Additional information
Operating voltage	9 ... 32 V DC	ambient condition MH, reverse polarity protected
	24 V DC $\pm 20\%$	ambient condition CE, reverse polarity protected
Current consumption	<40 mA at 24 V DC	per encoder
	<60 mA at 12 V DC	per encoder
Power input	<1 W	
Parameter storage	10 ⁵ cycles	also applies to calibration operations
Linearity tolerance	$\pm 0.25\%$	5000 mm measurement length
Interface	ISO 11898-1/2, not electrically isolated	CANopen Safety, CiA 301, CiA 305, CiA 406, EN50325-5
	according to ISO 11898, not electrically isolated	SAE J1939
Address	1 ... 127	Node ID, via SDO or Layer Setting Service (LSS)
Baud rate	20 kbit/s	
	50 kbit/s	
	125 kbit/s	
	250 kbit/s	
	500 kbit/s	
	800 kbit/s	
Cycle time	1.5 ms, typical	
Settling time	<150 ms	
Type of connection	connector system	KV1H accessory

System data

Feature	Technical data	Additional information
Scanning	magnetic	
Resolution	12 bit	analog output
	0.1 mm	CANopen, SAE J1939, CANopen Safety
Repeat accuracy	± 0.15 mm	unidirectional
Measuring range	0 ... 5000 mm	measuring range flexibly usable between 0 ... 5000 mm
Travel speed	≤ 2 m/s	
Failure rate	290 Year(s)	analog redundant, at 40 °C (MTBF) SN 29500
	240 Year(s)	CANopen, at 40 °C (MTBF) SN 29500
	540 Year(s)	analog not redundant, at 40 °C (MTBF) SN 29500
	460 Year(s)	CAN not redundant, at 40 °C (MTBF) SN 29500
	170 Year(s)	CAN safety redundant, at 40 °C (MTBF) SN 29500
	730 Year(s)	CANopen Safety, bei 60 °C (MTTFd)
	156 FIT	CANopen Safety, at 60 °C (PFH) 1 FIT = 1.0 E - 09 1/h
84 %	CANopen Safety, at 60 °C (DCavg value), ISO13849-1, Appendix E.2	
Approval	E1 compliant	UN /ECE R10 approval number: E1 10 R - 05 8507

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-40 ... 105 °C	electronics
	-30 ... 100 °C	mechanics, optionally to 105 °C
Storage temperature	-40 ... 85 °C	
Relative humidity	100 %	condensation admissible in the mounted and plugged condition
Operating pressure	<350 bar	P _n based on ISO19879
Overload pressure	<450 bar	P _{max} based on ISO 19879
Test pressure	650 bar	P _{static} based on ISO 19879
EMC	EN 61326-3.1	ambient condition CE, industry immunity requirement, class B emission limit
	ISO 11452-1, -2, -3, -4, -5	ambient condition MH, interference EUB
	ISO 7637-1, -2	ambient condition MH, transient impulses
	ISO 10605	ambient condition MH, electrostatic discharge (ESD)
Protection category	IP67	EN 60529, installed with KV1H and suitable mating plug
	IP6K9K	ISO 20653, fitted with KV1H and suitable mating connector
Shock resistance	1000 m/s ² , 11 ms	EN 60068-2-27
Vibration resistance	≤ 70 m/s ² , 10 ... 2000 Hz	EN 60068-2-64

Order

■ Ordering information

One or more system components are required:

Cable extension KV1H

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■ Ordering table

Feature	Ordering data	Spezifikation	Additional information
Measuring range	A ...	3000, 3500, 4000, 4500, 5000 in mm	
ambient conditions	B MH CE	mobil hydraulics industrial hydraulics	
Interface	C 0/5V 0/10V 0.25/4.75V 0.5/4.5V 1.0/4.9V 0/20mA 4/20mA CAN CANs	0 ... 5 V 0 ... 10 V 0.25 ... 4.75 V 0.5 ... 4.5 V 1.0 ... 4.9 V 0 ... 20 mA 4 ... 20 mA CANopen CANopen Safety	
redundancy	D NR R	not redundant redundant	

■ Order key

SGH50 - - - - - - - -



Scope of delivery:
SGH50, Quick Start Guide



Accessories you can find:

Wire extension piece SVH
Installation tool ZB4006
Programming tool ProTool SGH
Rope swivel ZB4009
Socket wrench ZB4008

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