

DriveLine | Actuators

4

Success is the result of a commitment to precision, innovation and customer benefit

"Precision is SIKO's top priority and standard!" True to this philosophy, SIKO has been developing and producing innovative solutions in distance and angle measurement technology for more than 45 years now. Based in Buchenbach in the foothills of the Black Forest, the company produces its own measurement technologies, which are a global success in all areas of mechanical engineering. Even today, SIKO's core concept is still manifest in its innovative power, product development and company spirit. Since taking over the business in 1990, industrial engineer Horst Wandres, son of its founder, has continued to develop this philosophy with impressive results.



We speak the same language: At SIKO, a willingness to participate in open dialog enhances engineering performance. Our production site advantages are not interchangeable.



Intelligent solutions

Attentive ears will always find the right solution. Automation and process optimization are the cornerstones of SIKO's ambitious new technologies and goal-oriented measurement solutions. The company pursues a clear, consistent line of development, ranging from digital position indicators and handwheels through incremental encoders, absolute encoders and measurement displays to future-oriented technologies with electronically programmable or magnetic measurement systems (MagLine).

SIKO again follows the road to success with its compact, ultra-resilient actuators (DriveLine), which enable automated adjustment of machine axles.

6 distinctive product lines

PositionLine	Mechanical and electronic position indicators, handwheels with analog indicators, control knobs
RotoLine	Magnetic and optical encoders, geared potentiometers
LinearLine	Wire-actuated encoders
DriveLine	Actuators
MagLine	Magnetic length and angle measurement systems
DisplayLine	Measurement displays



Consistent teamwork

The secret of SIKO's development prowess lies in the motivation and team spirit of its workers. SIKO has a conscious policy of integrating the experiences of its 170 employees, which has a dynamic effect on all areas of company life. Outstanding individual performances blend together to enhance the efficiency of the whole organization.

Not one for all but all together – this motto typifies SIKO's synergetic development process, delivering solutions which dominate the market in all aspects of "measurement technology in mechanical engineering".

This is SIKO today. Precision in motion, dynamic and open for the future ...



4.1 | Actuators

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4.1

4.2

4.3

Drive Technology: New dynamics for production processes

SIKO's intelligent, compact DriveLine actuators offer you greater flexibility for your production process as well as significant benefits as far as productive time and product quality are concerned.

Minimizing the adjustment times of machines and the wastage produced has a considerable impact on a company's efficiency and cost-effectiveness. Adjustments with DriveLine actuators are about four times faster and much more precise than those conducted manually. Users speak of an increased production performance of up to 30 %.

An actuator consists of the following precisely matched components:

- High-performance DC motor
- Spur gear/epicyclic gear in hollow or solid shaft configuration
- Position encoder
- Power/control electronics



- Drive
- Gear
- Encoder
- Electronics: Compact construction promises short reaction times

Combining these components in a carefully engineered, extremely compact modular design sets new standards with regard to size and performance. The gearbox housing is made of zinc die casting and aluminum. The spur gear transmission, available in a series of gear ratios, has cogwheels of high-tensile special steel.

The drive is provided by 24 V DC high-performance motors. For their low construction volume, they deliver an enormous output of up to 160 W with maximized service life and dynamics! The hollow shaft is mounted by simply sliding on and locking the drive shaft by means of a clamping ring (keyway optional), thus dispensing with expensive couplings or mounting flanges.

A playfree encoder mounted directly on the hollow drive shaft provides precise capture of measurement values, thereby enabling positioning tasks even in the micrometer range.

The actuators can be connected to all commercially available position regulators designed for 24 V DC motors. Configurations without a built-in encoder are available on request.

Benefits

- Automation technology with an excellent price-performance ratio
- Simple control behavior
- High starting torque enables dirt-bound spindles to break free
- Long service life

Versatile application

The mechanical engineer also profits by this flexible, modular automation: It enables him to design his products in a variety of versions – from the basic model to the fully automated version, providing the end user with his own tailor-made solution from the point of view of price and performance.

More efficient axle adjustment: The true strength of DriveLine actuators lies in the useful series connection. When these modules are centrally controlled, they accomplish the adjustment work in only one cycle.



Areas of application

Industrial production requires precise, economical solutions. Particularly with frequently repeated adjustment changes, manual intervention often proves too costly and time-consuming. Centrally controlled units of SIKO drive technology, with their robust components combined in a compact housing, work together logically to provide an efficient solution. They enable all adjustment spindles of a machine to be operated within only one cycle time.

DriveLine actuators work best in a team. They are used in production machines in the metal, packaging, wood, glass, printing and plastic industries and in tool machines and special machines.

Typical applications are in the wood and metal processing industries for shaping and refining products and surfaces, as well as in cardboard processing for the manufacture of folding boxes of different dimensions.

4.1



[1] DriveLine actuators have proven their value in application on edge-gluing presses and guarantee consistent product quality for “on-the-fly” production changes. [2] Insert the part to be glued and press the start button: semi-automated gluing process with measurement feedback via a combination of magnetic ring and sensor (SIKO MagLine). [3] Measurable time-savings: autonomous mass production at a bottling plant. [4] Many adjustments quickly performed: the advantages of central workflow control. [5] Spacing of guide rollers is regulated in a Laser welding system for stainless steel pipes.

Performance charts

Key performance characteristics can be seen and compared in the following charts.

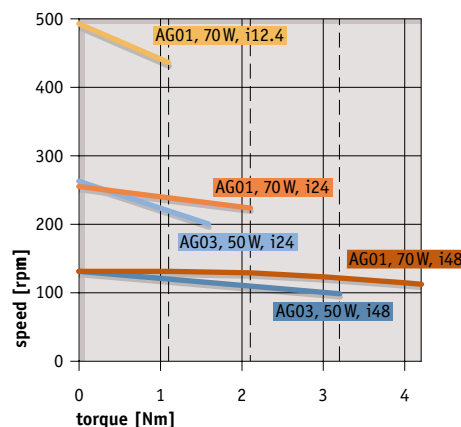
Measurement procedure

The performance chart of a DriveLine actuator shows the maximum performance curve (rpm/Nm) in relation to a particular motor/gear combination. All the characteristics refer to 24 V DC motors.

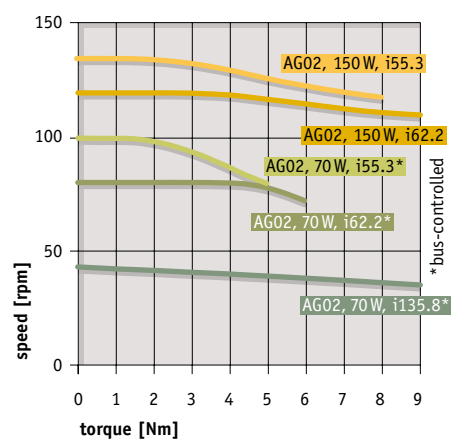
It can be seen that, performance data can deviate from the displayed values in actual use. This is due to a number of factors, such as motor-induced revolution divergences of $\pm 15\%$. We will be pleased to give you more detailed advice on these special cases.

4.1

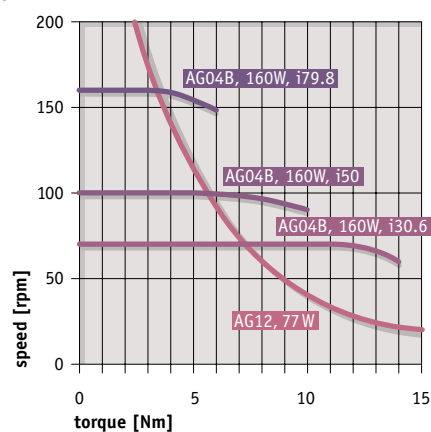
AG01, AG03



AG02



AG04B, AG12

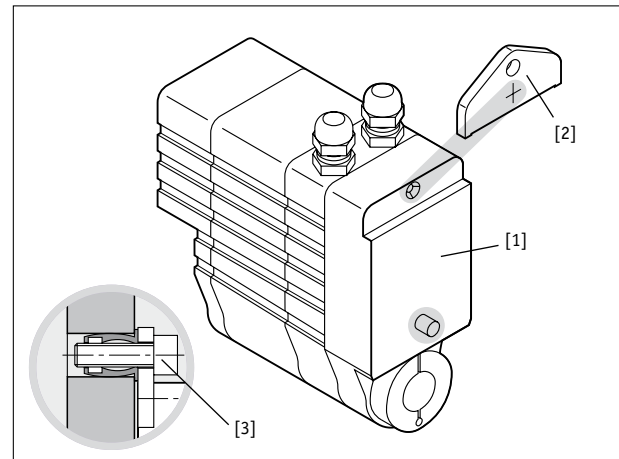


Torque support

The hollow shaft design of the DriveLine actuators AG01, AG02, AG03 and AG04B makes for very simple mounting. A clamping ring on the device mounting side provides secure connection to the machine shaft.

The torque bracing to the machine frame is by means of a pin [1]. Alternatively, a mounting bracket can be used [2]. This type of securing enables use of an **elastomere bushing** [3], which provides a low-tension connection from the actuator to the machine shaft.

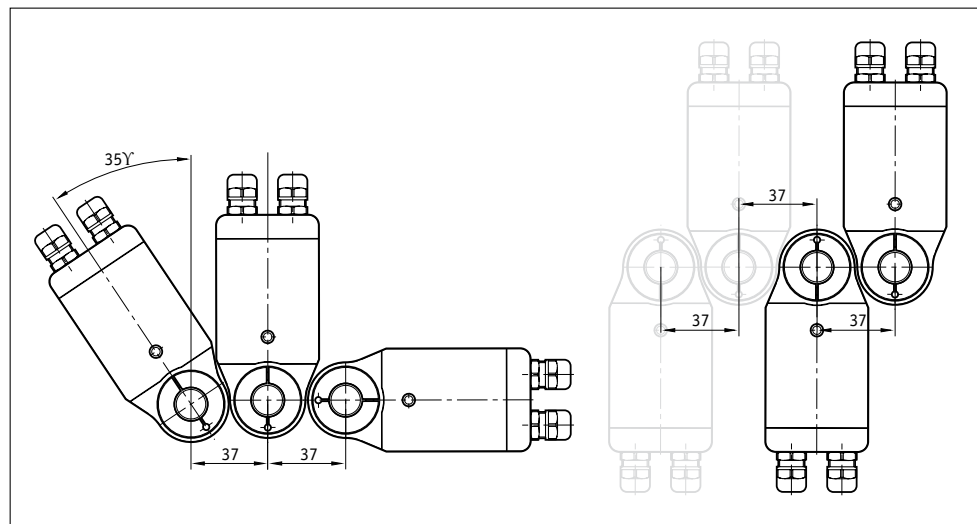
Advantage: The distortion forces on the bearing are reduced.



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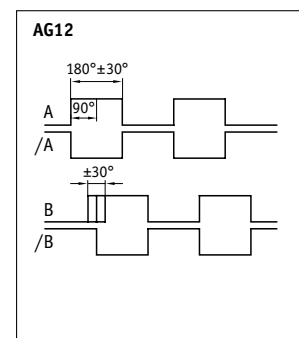
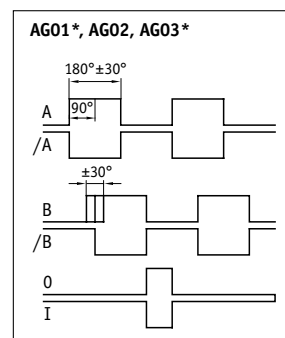
Mounting variants

The cleverly engineered design of the AG01 and AG03 opens up a host of installation variations. The tapered construction in the area of the hollow shaft makes small center-to-center distances of as little as 37 mm achievable.



Output signals incremental

Note (AG01, AG03): The status of the signals A and B with regard to the reference signal 0/I is not defined and may deviate from this drawing.



Motor control

Combining an actuator with an internal or external motor control (e.g., motor control module MS02, see product page, chapter on accessories) also enables use of the revolution range below the highest curve plot. The torque is then generally preserved. Motor controls change the performance of a drive by **pulse width modulation (PWM)**.

Ambient conditions

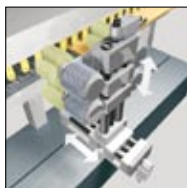
Examples of use



Direct adjustment:

Direct action via axle or spindle. The principle of action corresponds to that of a compound table or of linear guides.

Wood, metal and plastic processing



e.g., stop adjustment on saws and milling machines, tool settings according to the compound table principle ...



e.g., angle and position adjustment in the wood and metal industries ...



Indirect adjustment:

Indirect action (offset) on racks via cogwheel or worm gear.

Paper/converting



e.g., automated format, distance or throughput adjustment with spooling slitting machines (paper, foil), printing presses, filling machines ...



Rotating adjustment:










Direct action on the rotation axis or indirect action (offset) on a rotation axis via bevel gear or worm gear.

Logistics



e.g., adjustment of plants to rapidly changing tasks of conveyor belts ...

Actuators

									
	AG01 incremental	AG01 analog	AG02 incremental	AG02 analog	AG02 fieldbus	AG03 incremental	AG03 fieldbus	AG04B fieldbus	AG12 incremental
Page	10	13	17	19	22	25	28	31	34
Speed/torque									
Torque max.	4.2 Nm	4.2 Nm	9 Nm	9 Nm	9 Nm	3.2 Nm	3.2 Nm	14 Nm	15 Nm
Speed max.	500 rpm	500 rpm	120 rpm	120 rpm	100 rpm	250 rpm	250 rpm	150 rpm	1600 rpm
Driving shaft									
Hollow shaft with clamp ring, diameter max. in mm	14	14	14	14	14	14	14	20	
Solid shaft with feather, diameter max. in mm									10
Outputs									
Without	•		•			•			
Potentiometric		•		•					
Current source 4 ... 20 mA		•		•					
Voltage 0 ... 10 V DC		•		•					
Incremental LD5	•		•						
Incremental LD24	•		•			•			•
Incremental OP	•		•			•			
Absolute digital					•		•	•	
Fieldbus (option)					Profibus CANopen		Profibus	Profibus	
Motor control									
Integrated			option			•			
External	option	option	option	option					option

Electrical data

Motor data

Feature	Technical data	Additional information
Motor voltage supply	0 ... 24 V DC	
Power consumption, fed	70 W	
Rated current	2.9 A $\pm 10\%$ (70 W-M)	max. load current 3.2 A
	4.1 A $\pm 10\%$ (70 W-G)	max. load current 4.5 A

Encoder data

Feature	LD5	LD24	OP
Voltage supply	5 V DC $\pm 5\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$
Power consumption	≤ 50 mA	≤ 25 mA	≤ 25 mA
Output circuit	line driver (RS422)	line driver (RS422)	push-pull (OP)
Output signals	(A, B, 0, /A, /B, /0)	(A, B, 0, /A, /B, /0)	(A, B, 0, /A, /B, /0)
Pulse frequency max.	20 kHz	20 kHz	20 kHz

Pin assignment

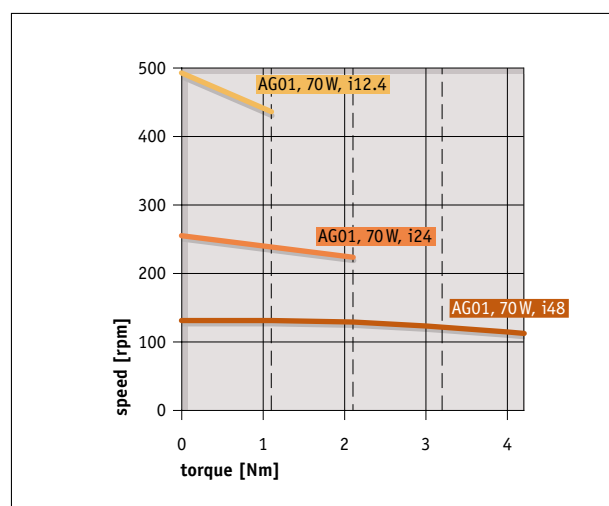
Motor

Signal	EX	E1
+	1	M1, white imprinted
+	2	
-	3	M2, white imprinted
-	4	

Encoder

Signal	EX	E1
B	1	white
+UB	2	brown
0	3	green
A	4	yellow
GND	5	gray
/A	6	pink
/B	7	blue
I	8	red

Performance curve



Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	48	i = 48	
	24	i = 24	
	12.4	i = 12,4	
Motor rating	70W-M	24 V DC	
	70W-G	24 V DC	
		others on request	
Shaft design	KR/14	clamp ring, Ø 14 mm	
	KR/12	clamp ring, Ø 12 mm	
	N/10	keyway JS9 DIN 6889, 1, Ø 10 mm	
Hollow shaft type	S	blind hole	
	D	through	
Torque support (form)	A	bolt, Ø 6 mm	
	B	lug I	incl. elastomer bushing
Type of connection	E1	open cable	
	EX	socket on the device	
Motor cable length	2.0	in m	
		others on request	
Encoder cable length	2.0	in m	
		others on request	
Encoder	LD24	incremental encoder 1024 pulses	
	LD5	incremental encoder 1024 pulses	
	OP	push-pull with inversion	
	0	without	

Order code

AG01

-

A

-

B

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C

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D

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E

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F

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G

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H

-

I

Scope of delivery: AG01, User information

Accessories:

Mating connectors
Cable extension
Motor control MS02

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Page 46
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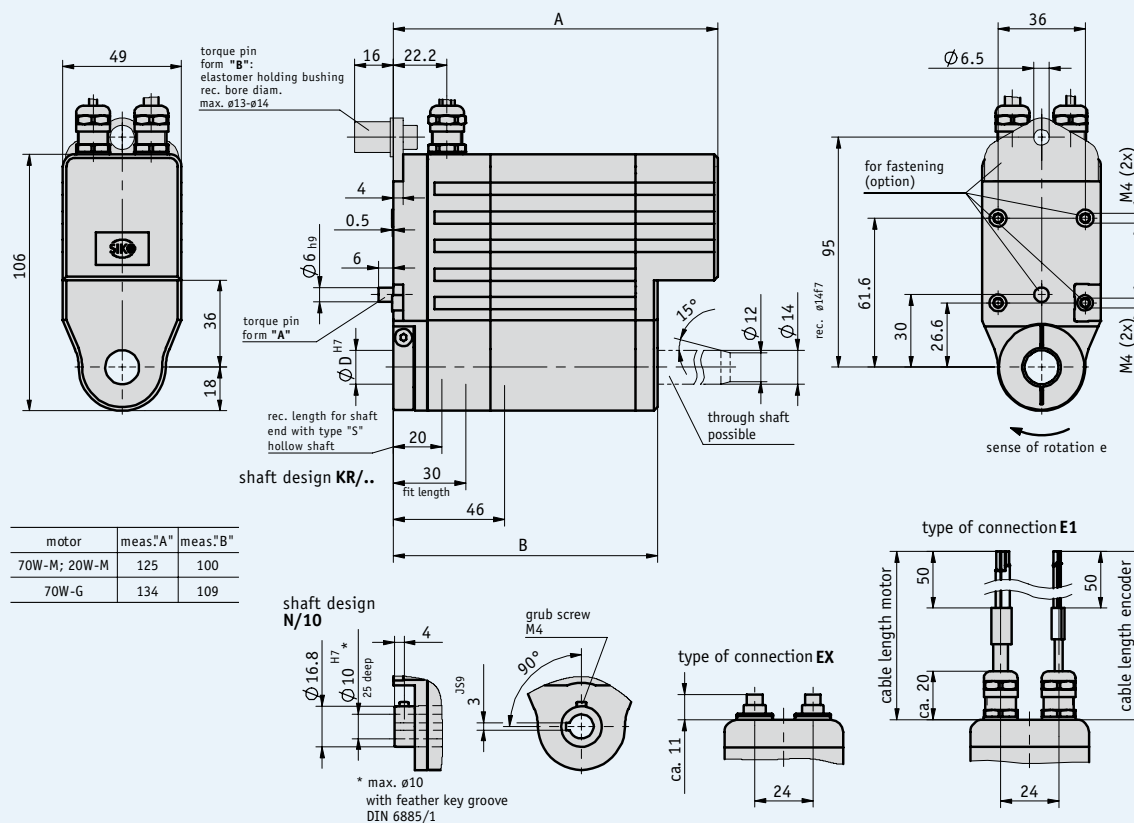
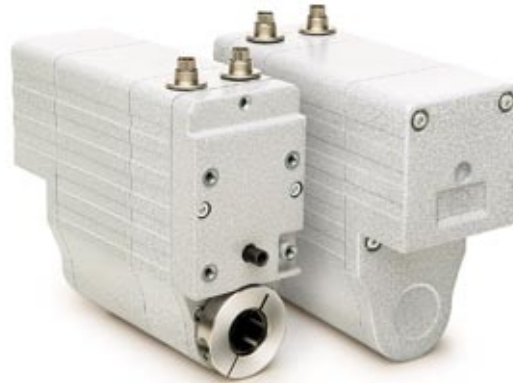
Additional information:

General information and areas of application

Page 4 cont.

Profile

- Easy mounting
- Through hollow shafts up to max. Ø 14 mm possible
- Integrated analog absolute position encoder
- Electrical connection via cable or connector



Mechanical data

Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum, zinc die-cast powder-coated	
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	0 ... +70 °C	condensation inadmissible
Operating mode	short-time operation S2, 25 % duty cycle	according to DIN 57530, VDE 0530 part 1
Interference protection class	acc. to EN 61000-6-2 and EN 61000-6-4	
Protection category	IP63, others on request	according to DIN VDE 0470
Weight	approx. 1.4 kg	

Electrical data

Motor data

Feature	Technical data	Additional information
Motor voltage supply	0 ... 24 V DC	
Power consumption, fed	70 W	
Rated current	2.9 A $\pm 10\%$ (70 W-M)	max. load current 3.2 A
	4.1 A $\pm 10\%$ (70 W-G)	max. load current 4.5 A

Potentiometer data

Feature	Technical data	Additional information
Resistance tolerance	$\pm 5\%$	
Linearity tolerance	$\pm 0.25\%$	
Power rating	2 W at 40 °C	potentiometer
Standard terminal resistor	0.5 % oder 1 Ω , others on request	(always the higher value)

Pin assignment

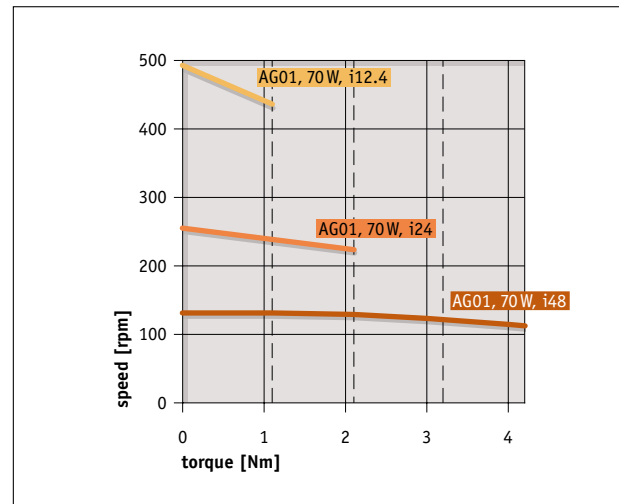
Motor

Signal	EX	E1
+	1	M1, white imprinted
+	2	
-	3	M2, white imprinted
-	4	

Potentiometer

P10	MWU	MWI	EX	E1
Po	+24 V DC	I+	1	brown
S	Uout		2	green
Pe	GND	I-	3	white

Performance curve



Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	48	i = 48	
	24	i = 24	
	12.4	i = 12,4	
Motor rating	70W-M	24 V DC	
	70W-G	24 V DC	
		others on request	
Shaft design	KR/14	clamp ring, Ø 14 mm	
	KR/12	clamp ring, Ø 12 mm	
	N/10	keyway JS9 DIN 6889, 1, Ø 10 mm	
Hollow shaft type	S	blind hole	
	D	through	
Torque support (form)	A	bolt, Ø 6 mm	
	B	lug I	incl. elastomer bushing
Type of connection	E1	open cable	
	EX	socket on the device	
Motor cable length	2.0	in m	
		others on request	
Encoder cable length	2.0	in m	
		others on request	
Encoder	P10	potentiometer 10 kΩ	10-turn potentiometer
	MWI	transducer 4 ... 20 mA	10-turn potentiometer
	MWU	transducer 0 ... 10 V	10-turn potentiometer
		others on request	
Potentiometer gear ratio*	...	1 ... 128 max.	only with encoders P10, MWI and MWU
Sense of rotation	i	clockwise ascending values	only with encoders MWI or MWU
	e	counter-clockwise ascending values	only with encoders MWI or MWU

* Calculation of potentiometer gear ratio: For example, if 120 revolutions are required for one adjustment, then a gear ratio of 12 should be indicated for the 10-turn potentiometer. To be precise: number of revolutions required/10 (10-turn potentiometer) = potentiometer gear ratio

Order code

AG01 - - - - - - - - - - - -

Scope of delivery: AG01, User information

Accessories:

Mating connectors

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Cable extension

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Motor control MS02

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Additional information:

General information and areas of application

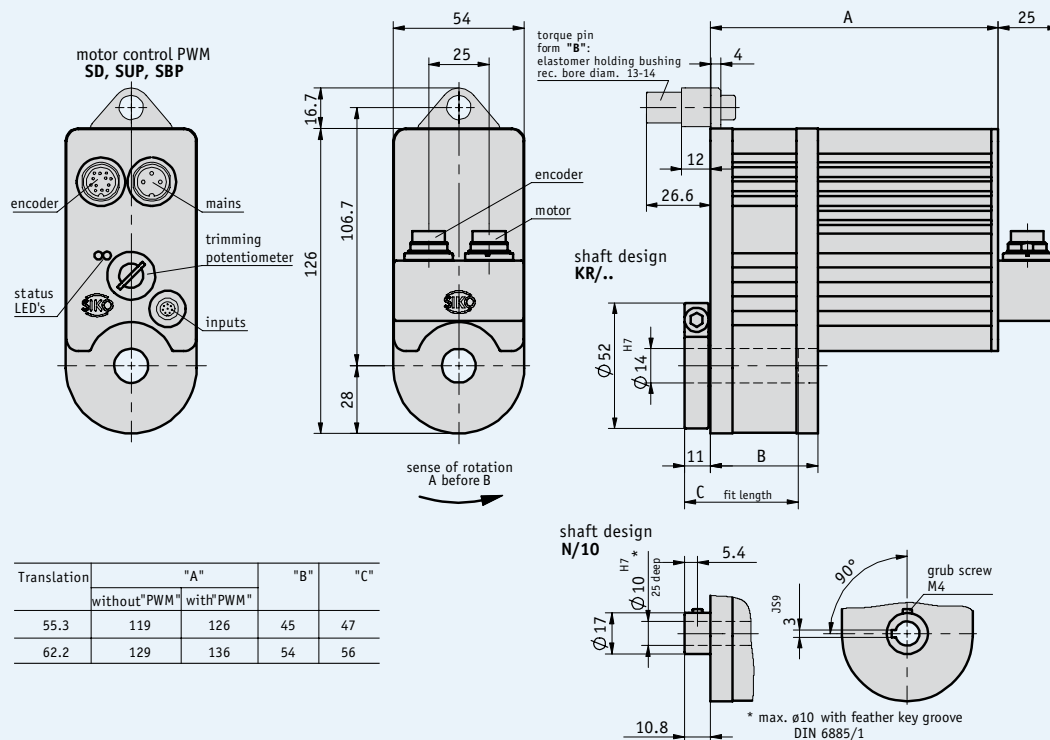
Page 4 cont.

Profile

- Easy mounting
- Through hollow shafts up to max. \varnothing 14 mm
- Integrated magnetic position encoder on output shaft
- Integrated motor control (option)



4.1



Mechanical data

Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum	
Nominal torque	5 Nm at 80 rpm (motor 70 W/M) 6 Nm at 70 rpm (motor 70 W/M) 8 Nm at 120 rpm (motor 150 W/M) 9 Nm at 110 rpm (motor 150 W/M)	with i = 55.3 with i = 62.2 with i = 55.3 with i = 62.2
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	-10 ... +80 °C	condensation inadmissible
Operating mode	short-time operation S2, 25 % duty cycle	according to DIN 57530, VDE 0530, part 1
Interference protection class	acc. to EN 61000-6-2 and EN 61000-6-4	
Protection category	IP50, others on request	according to DIN VDE 0470
Weight	approx. 1.6 kg	

Electrical data

Motor/network data

Feature	Technical data	Additional information
Voltage supply	0 ... 24 V DC, 24 V DC $\pm 10\%$	
Power consumption, fed	150 W; 70 W	
Max. load current	5.8 A $\pm 4\%$ (150 W)	with $i = 55.3$
	2.9 A $\pm 4\%$ (70 W-M)	with $i = 62.2$
PWM (pulse width modulation)	~ 16 kHz continuous, 0 ... 100 %	soft start
Inputs	analog, digital	digital with LED indicator
Digital inputs	15 ... 30 V, typically 10 mA	
Analog inputs	0 ... +10 V, -10 ... +10 V	impedance > 1.3 M Ω

Encoder data

Feature	LD5	LD24	OP
Voltage supply	5 V DC $\pm 5\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$
Power consumption	≤ 50 mA	≤ 25 mA	≤ 25 mA
Output circuit	line driver (RS422)	line driver (RS422)	push-pull (OP)
Output signals	(A, B, 0, /A, /B, /0)	(A, B, 0, /A, /B, /0)	(A, B, 0, /A, /B, /0)
Pulse frequency max.	20 kHz	20 kHz	20 kHz

4.1

Pin assignment

Motor/network

Signal	PIN
Motor + / +Ub	1
N.C.	2
Motor - / 0V	3

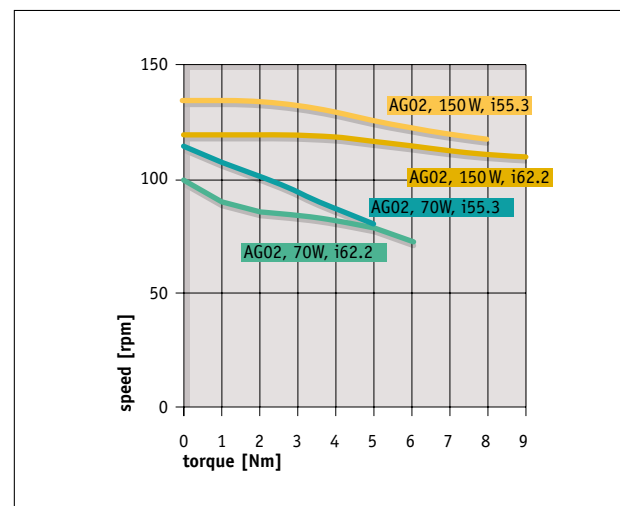
Incremental

Encoder LD24, OP	Encoder LD5	PIN
/B	/B	A
N.C.	+SUB (sensor)	B
0	0	C
I	I	D
A	A	E
/A	/A	F
B	B	H
GND	GND	K
N.C.	SGND (sensor)	L
+UB	+UB	M
N.C.	N.C.	G, J

Motor control PWM

Digital	Analog unipolar	Analog bipolar	PIN
Clockwise plus	enable plus	enable plus	1
Clockwise ground	enable ground	enable ground	2
Counter-clockwise plus	cw/ccw plus	N.C.	3
Counter-clockwise ground	cw/ccw ground	N.C.	4
Fast/creep plus	analog 0 ... +10 V	analog -10 ... +10 V	5
Fast/creep ground	analog ground	analog ground	6
			7, 8

Performance curve



Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	55.3	i = 55.3	
	62.2	i = 62.2	
Motor rating	150 W		
	70 W-M		only with SD, SUP or SBP motor controls
Shaft design	KR/14	clamp ring, Ø 14 mm	
		others on request	
Torque support (form)	B	lug	incl. elastomer bushing
	OD	without	
Position of electrical connection	LR	radial	with external motor control
	LA	axial	with integrated motor control
Position encoder	LD24	incremental encoder 1000 pulses	24 V DC ±20 %
	LD5	incremental encoder 1000 pulses	5 V DC ±5 %
	OP	push-pull with inversion	24 V DC ±20 %
	0	without	only with "Position of electrical connection" LR
Motor control PWM	OMS	without	only with motor rating 150 W
	SD	digital input	
	SUP	analog input, unipolar 0 ... 10 V	
	SBP	analog input, bipolar -10 ... +10 V	

Order code

AG02

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A

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B

-

C

-

D

-

E

-

F

-

G

-

XX/XX

-

OFB

Scope of delivery: AG02, User information

Accessories:

Mating connectors
Cable extension
Motor control MS02

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Additional information:

General information and areas of application

Page 4 cont.

- Easy mounting
- Optional through hollow shafts up to max. Ø 14 mm
- Integrated analog absolute position encoder



Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum	
Nominal torque	8 Nm at 120 rpm (motor 150 W)	with i = 55.3
	9 Nm at 110 rpm (motor 150 W)	with i = 62.2
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	-10 ... +80 °C, 0 ... +70 °C mit transducer	condensation inadmissible
Operating mode	short-time operation S2, 25 % duty cycle	according to DIN 57530, VDE 0530, part 1
Interference protection class	acc. to EN 61000-6-2 and EN 61000-6-4	
Protection category	IP50, others on request	according to DIN VDE 0470
Weight	approx. 1.8 kg	

Electrical data

Motor data

Feature	Technical data	Additional information
Voltage supply	0 ... 24 V DC	
Power consumption, fed	150 W	
Max. load current	5.8 A \pm 4 % (150 W)	

Potentiometer data

Feature	Technical data	Additional information
Resistance tolerance	± 5 %	
Linearity tolerance	$\pm 0,25$ %	
Power rating	2 W at 40 °C	potentiometer
Standard terminal resistor	0,5 % oder 1 Ω , others on request	always the higher value

Pin assignment

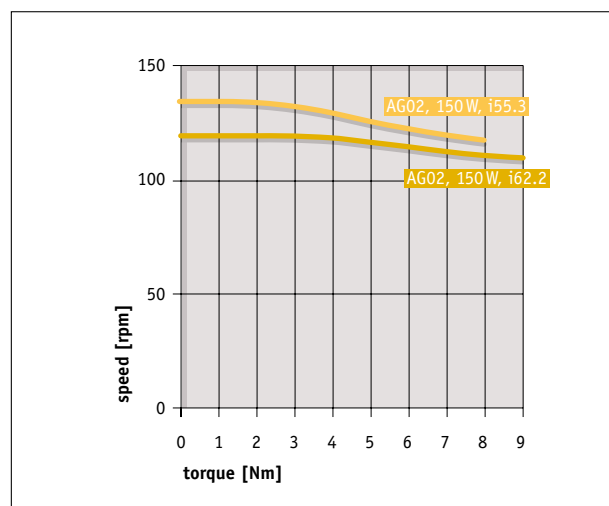
Motor

Signal	PIN
Motor +	1
N.C.	2
Motor -	3

Potentiometer

P01/P10	MWI	MWU	PIN
Pe	I-	GND	1
Po	I+	+24 V DC	2
S	N.C.	Uout	3
N.C.	N.C.	N.C.	4-7

Performance curve



Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	55.3	i = 55.3	
	62.2	i = 62.2	
Shaft design	KR/14	clamp ring, Ø 14 mm	
		others on request	
Hollow shaft type	S	blind hole	max. shaft end length, see Dimensions
	D	through	
Torque support (form)	B	lug I	incl. elastomer bushing
	OD	without	
Position encoder	MWI	transducer 4 ... 20 mA	10-turn potentiometer
	MWU	transducer 0 ... 10 V	10-turn potentiometer
	P01	potentiometer 1 kΩ	10-turn potentiometer
	P10	potentiometer 10 kΩ	10-turn potentiometer
		others on request	
Potentiometer gear ratio*	...	1 ... 128 max.	
Sense of rotation	i	clockwise ascending values	only with MWI and MWU encoders
	e	counter-clockwise ascending values	only with MWI and MWU encoders

** Calculation of potentiometer gear ratio: For example, if 120 revolutions are required for one adjustment, then a gear ratio of 12 should be indicated for the 10-turn potentiometer. To be precise: number of revolutions required/10 (10-turn potentiometer) = potentiometer gear ratio

Order code

AG02 - - 150W - - - - LR - - - - OMS - XX/XX - OFB

Scope of delivery: AG02, User information

Accessories:

Mating connectors

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Cable extension

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Motor control MS02

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Additional information:

General information and areas of application

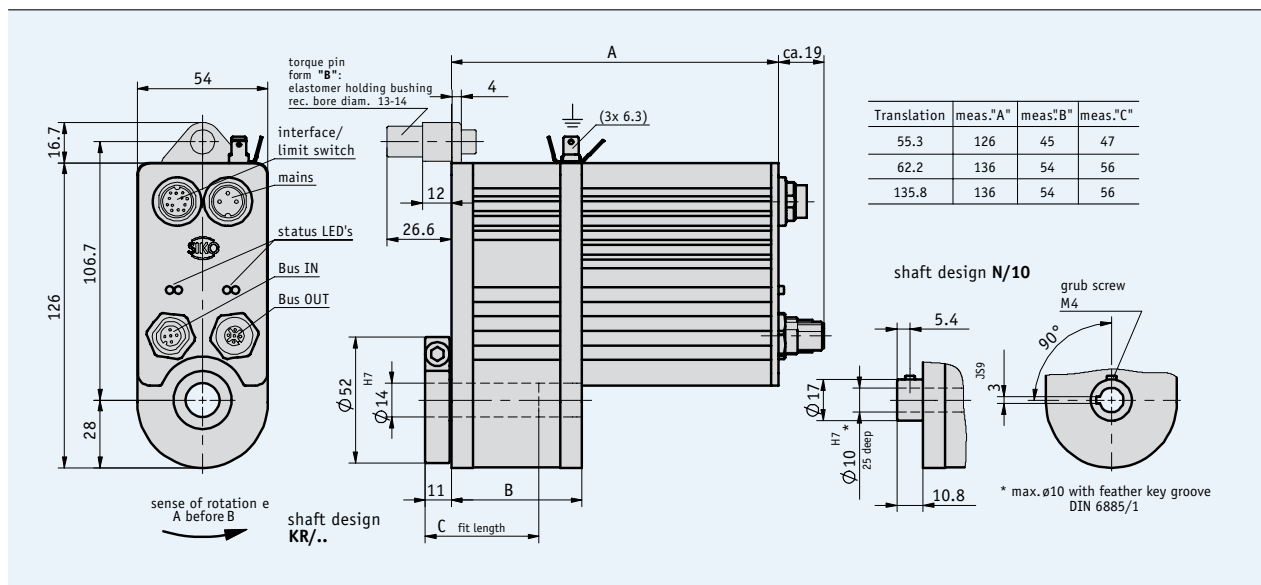
Page 4 cont.

Profile

- Easy mounting
- Through hollow shafts up to max. Ø 14 mm
- Integrated magnetic absolute position encoder on the output shaft
- Integrated positioning controller
- Integrated fieldbus interface (option)



4.1



Mechanical data

Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum	
Nominal torque	5 Nm, 80 rpm (motor 70 W/M)	with i = 55.3
	6 Nm, 70 rpm (motor 70 W/M)	with i = 62.2
	9 Nm, 30 rpm (motor 70 W/M)	with i = 135.8
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	0 ... +50 °C	condensation inadmissible
Operating mode	short-time operation S2, 25 % duty cycle	according to DIN 57530, VDE 0530, part 1
Interference protection class	acc. to EN 61000-6-2 and EN 61000-6-4	
Protection category	IP50, others on request	according to DIN VDE 0470
Weight	approx. 1.2 kg	

Electrical data

Motor/network data

Feature	Technical data	Additional information
Voltage supply	24 V DC $\pm 10\%$	
Power consumption, fed	70 W	
Max. load current	2.9 A $\pm 4\%$	with $i = 55.3$, $i = 62.2$
	2.1 A $\pm 4\%$	with $i = 135.8$

Encoder data

Feature	Technical data	Additional information
Resolution absolute encoder (ABM)	± 6250 revolutions	
	1600 steps per revolution	

Pin assignment

Network

Signal	PIN
+Ub	1
N.C.	2
-	3

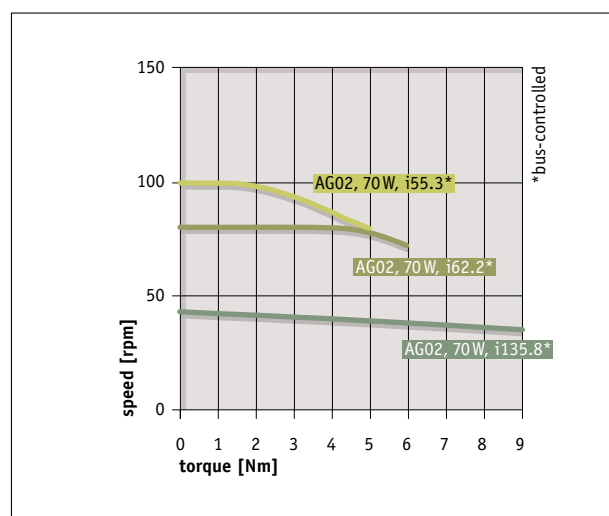
Fieldbus

Profibus-DP	CANopen	PIN
+5 V DC	N.C.	1
BUS A	N.C.	2
GND	CAN_GND	3
BUS B	CAN_H	4
N.C.	CAN_L	5

Interface/limit switch

Signal	PIN
ES1	A
ES2	B
Emergency-off	C
RXD/ DÜA	G
TXD/ DÜB	H
GND/ serial interface	J
GND (ES1, ES2, Emergency-off, CAL)	K
CAL	L
N.C.	D-F, M

Performance curve



4.1

Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	55.3	i = 55.3	
	62.2	i = 62.2	
	135.8	i = 135.8	
Shaft design	KR/14	clamp ring, Ø 14 mm	
		others on request	
Torque support (form)	B	lug I	incl. elastomer bushing
	OD	without	
Interface/protocol	S1/00	RS232, standard, electronic controller	
	S3/00	RS485, standard, electronic controller	
fieldbus	OFB	without fieldbus	
	PB	Profibus-DP	
	CAN	CANopen	

Order code

AG02 -

A

 - 70 W -

B

 - D -

C

 - LA - ABM - OMS -

D

 -

E

 - SW

Scope of delivery: AG02, User information
CD (manual, GDS and EDS files)

Accessories:

Mating connectors Page 44
Cable extension Page 46
Programming tool PT232 Page 40
Programming tool PT485 Page 42
S7 module on request

Additional information:

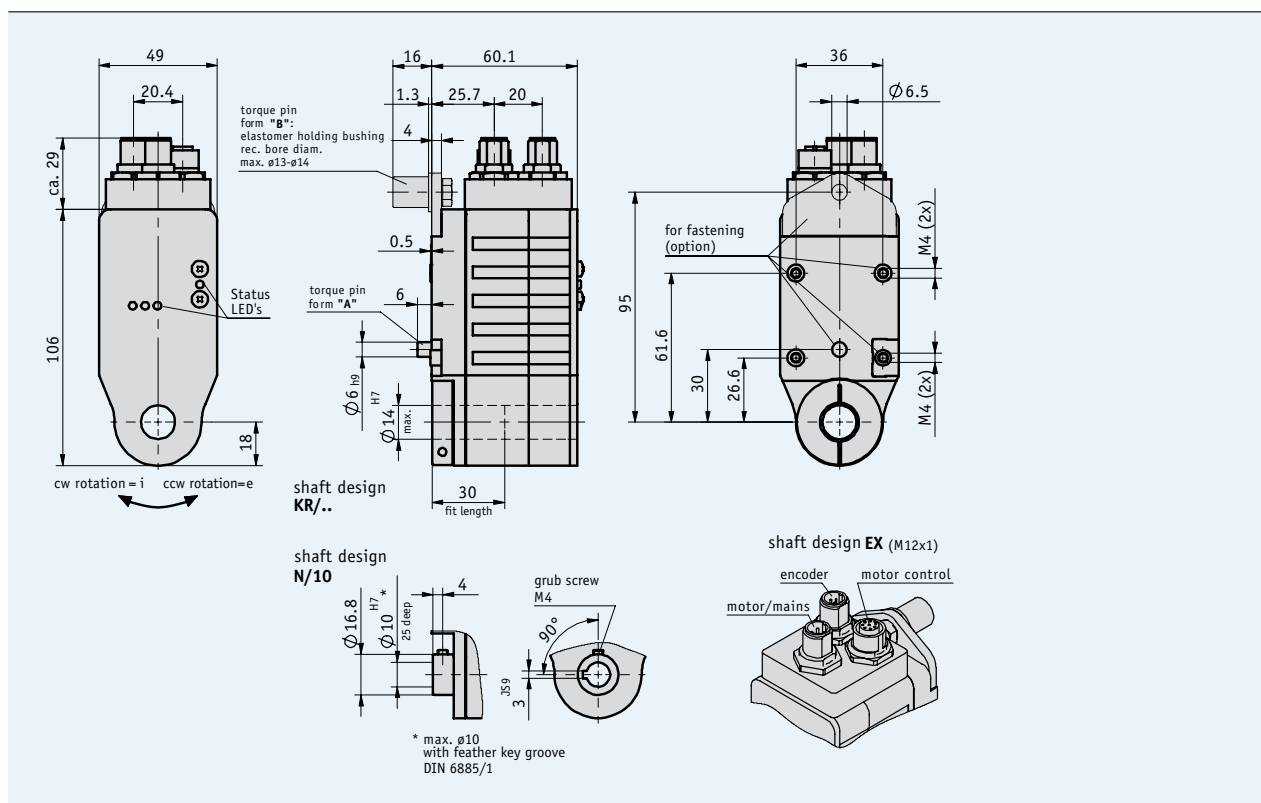
General information and areas of application Page 4 cont.

Profile

- Space-saving, easy mounting
- Through hollow shafts up to max. \varnothing 14 mm
- Integrated magnetic position encoder on output shaft
- Brushless EC motor with a long service life
- Integrated power and control electronics with inverse polarity and overload protection
- Electrical connection via M12 connector



4.1



Mechanical data

Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum, zinc die-cast powder-coated	
Nominal torque	1.6 Nm, 200 rpm 3.2 Nm, 100 rpm	with i = 24 with i = 48
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	0 ... +80 °C	condensation inadmissible
Ambient temperature	0 ... +45 °C	
Operating mode	short-time operation S2, 25 % duty cycle	DIN 57530, VDE 0530 part 1
Interference protection class	EN 61000-6-2, EN 61000-6-4	
Protection category	IP50, IP63, IP65	DIN VDE 0470
Weight	approx. 0.7 kg	

Electrical data

Motor/control data

Feature	Technical data	Additional information
Voltage supply	+24 V DC $\pm 10\%$	with inverse-polarity protection
Power consumption, fed	58 W	
Rated current with output value 100 %	2.4 A $\pm 7\%$ (50W-M)	max. load current 2.58 A
Idle current (with gear)	300 mA $\pm 20\%$	
PWM (pulse width modulation)	~16 kHz continuous, 0 ... 100 %	soft start
Inputs	analog, digital	digital with LED indicator
Digital inputs	15 ... 30 V, typically 10 mA	
Analog inputs	0 ... +10 V, -10 ... +10 V	impedance >1.3 M Ω

Encoder data

Feature	LD24	OP
Voltage supply	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$
Power consumption	≤ 25 mA	≤ 25 mA
Output circuit	line driver (RS422)	push-pull (OP)
Output signals	(A, B, 0, /A, /B, /0)	(A, B, 0, /A, /B, /0)
Pulse frequency max.	20 kHz	20 kHz

Pin assignment

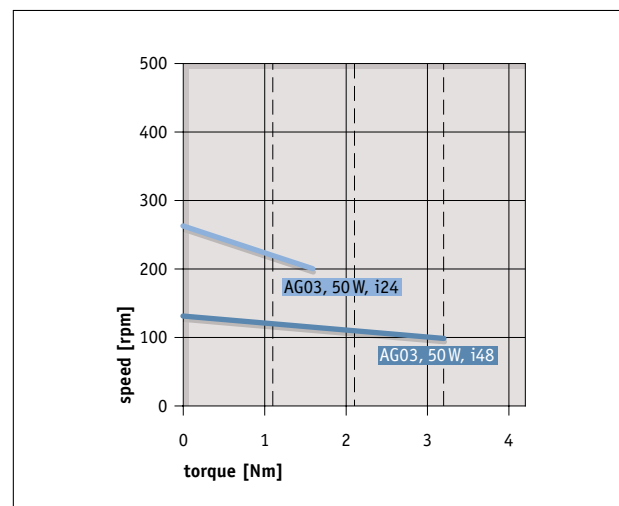
Motor/network

Signal	PIN
+	1
N.C.	2
-	3
N.C.	4

Encoder, LD24/OP, 8-pin

Signal	PIN	Additional information
+SUB	1	sensor
SGND	2	sensor
A	3	
/A	4	
B	5	
/B	6	
0	7	
I	8	

Performance curve



Motor control PWM

digital	Analog unipolar	Analog bipolar	PIN
Clockwise plus	enable plus	enable plus	1
Clockwise ground	enable ground	enable ground	2
Counter-clockwise plus	cw/ccw plus	N.C.	3
Counter-clockwise ground	cw/ccw ground	N.C.	4
Fast/creep plus	analog 0 ... +10 V	analog -10 ... +10 V	5
Fast/creep ground	analog ground	analog ground	6
N.C.	N.C.	N.C.	7, 8

Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	48	i = 48	25 % duty cycle
	24	i = 24	25 % duty cycle
Protection category	IP50		
	IP63		
	IP65		
Shaft design	KR/14	clamp ring, Ø 14 mm	
	KR/12	clamp ring, Ø 12 mm	
	N/10	keyway JS9 DIN 6885, 1, Ø 10 mm	
Torque support (form)	A	bolt, Ø 6 mm	
	B	lug I	incl. elastomer bushing
Encoder	LD24	incremental encoder 1024 pulses	
	OP	push-pull with inversion	
	0	without	
Motor control PWM	SD	digital	galvanically isolated
	SUP	analog unipolar	0 ... +10 V
	SBP	analog bipolar	-10 ... +10 V

4.1

Order code

AG03 - - 50W-M - - - - EX - - - OFB

A B C D E F

Scope of delivery: AG03, User information

Accessories:
Mating connectors

Page 44

Additional information:
General information and areas of application

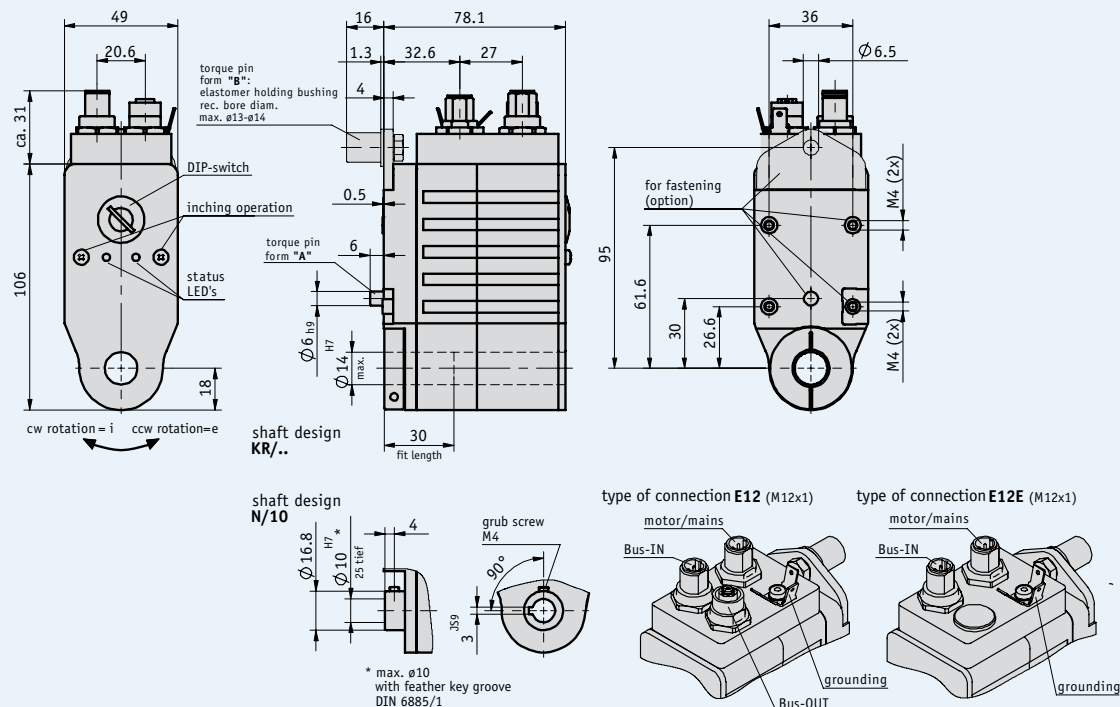
Page 4 cont.

Profile

- Space-saving, easy mounting
- Through hollow shafts up to max. \varnothing 14 mm
- Integrated magnetic absolute position encoder on the output shaft
- Brushless EC motor with a long service life
- Integrated position controller
- Integrated fieldbus interface
- Electrical connection via M12 connector



4.1



Mechanical data

Feature	Technical data	Additional information
Hollow shaft	browned steel	
Housing	aluminum, zinc die-cast powder-coated	
Nominal torque	1.6 Nm, 200 rpm	with i = 24
	3.2 Nm, 100 rpm	with i = 48
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	0 ... +80 °C	condensation inadmissible
Ambient temperature	0 ... +45 °C	
Operating mode	short-time operation S2, 25 % duty cycle	DIN 57530, VDE 0530 part 1
Interference protection class	EN 61000-6-2, EN 61000-6-4	
Protection category	IP50, IP63, IP65	DIN VDE 0470
Weight	approx. 0.8 kg	

Electrical data

Motor/control data

Feature	Technical data	Additional information
Voltage supply	+24 V DC $\pm 10\%$	with inverse-polarity protection
Power consumption, fed	58 W	
Rated current with output value 100 %	2.4 A $\pm 7\%$ (50W-M)	max. load current 2.58 A
Idle current (with gear)	300 mA $\pm 20\%$	

Encoder data

Feature	Technical data	Additional information
Resolution absolute encoder (ABM)	± 6250 revolutions 1600 steps per revolution	

Pin assignment

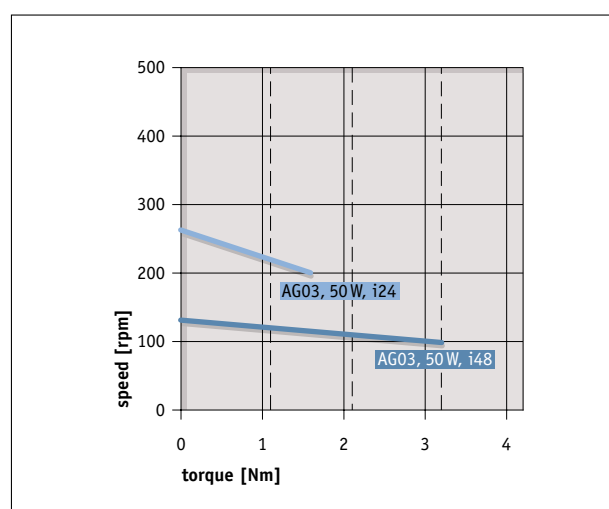
Network

Signal	PIN
+ Ub (24 V DC)	1
Enable (24 V DC)	2
- GND	3
N.C.	4

Fieldbus

Signal	EX
+ 5 V CD	1
BUS A	2
GND	3
BUS B	4
N.C.	5

Performance curve



4.1

Order

Order table

Feature	Order text	Specification	Additional information
Gear ratio	48	A	25 % duty cycle
	24		25 % duty cycle
Protection category	IP50	B	
	IP63		
	IP65		
Shaft design	KR/14	C	clamp ring, Ø 14 mm
	KR/12		clamp ring, Ø 12 mm
	N/10		keyway JS9 DIN 6885, 1, Ø 10 mm
Torque support (form)	A	D	bolt, Ø 6 mm
	B		lug I incl. elastomer bushing
Type of connection	E12	E	Bus-IN/Bus-OUT
	E12E		Bus-IN

Order code

AG03 -

A

 - 50W-M -

B

 -

C

 -

D

 -

E

 - ABM - OMS - PB - SW

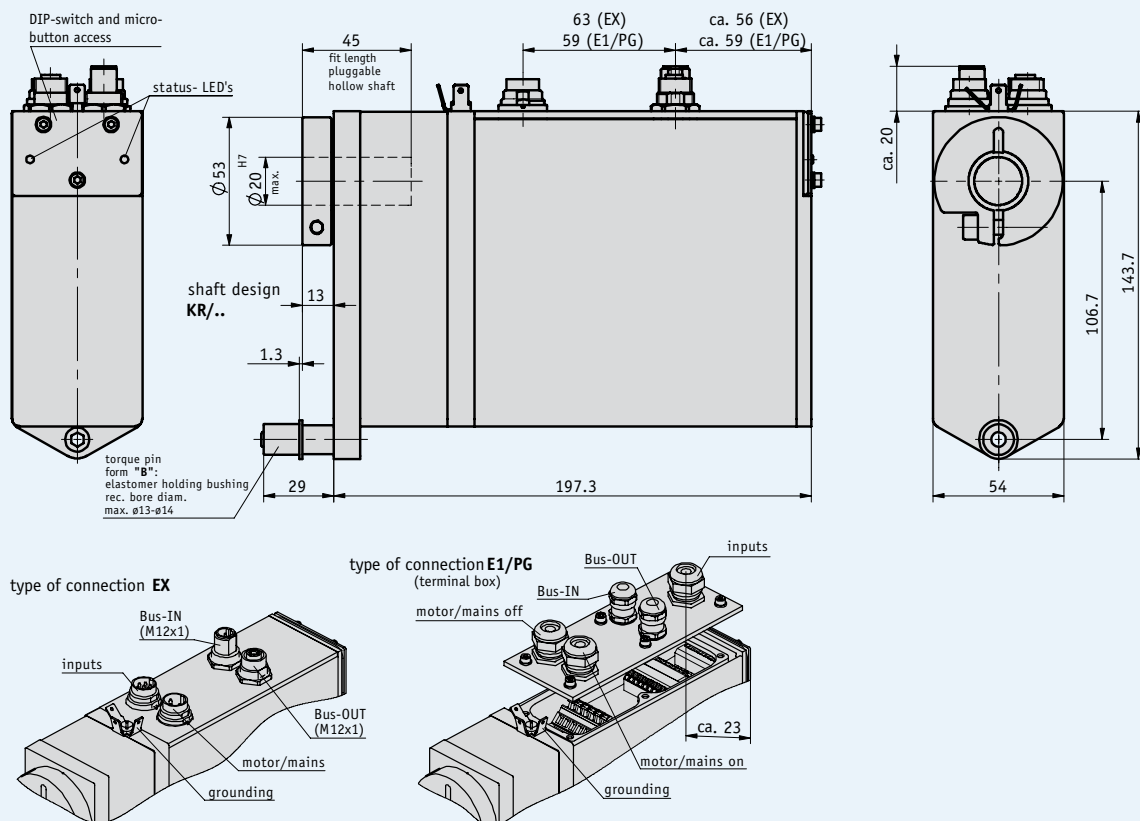
Scope of delivery: AG03, User information
CD (manual, GDS and EDS files)

Accessories:
Mating connectors
S7 module
Page 44
on request

Additional information:
General information and areas of application
Page 4 cont.

Profile

- Easy mounting
- Stainless steel hollow shafts up to max. $\varnothing 20$ mm
- "Manual" traveling without control via micro-button
- Brushless 160 W, 24 V DC motor with long service life
- Integrated magnetic absolute position encoder on the output shaft
- Electrical connection via spring terminals or connector
- Integrated positioning controller
- Integrated fieldbus interface
- Integrated spring-operated brake (option)



4.1

Mechanical data

Feature	Technical data	Additional information
Hollow shaft/clamp ring	stainless steel	Nirosta
Housing	aluminum	
Nominal torque	6 Nm, 150 rpm ($\pm 5\%$) 10 Nm, 90 rpm ($\pm 5\%$) 14 Nm, 64 rpm ($\pm 5\%$)	with $i = 30.6$ with $i = 50.0$ with $i = 70.8$
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	0 ... +80 °C	condensation inadmissible
Ambient temperature	0 ... +45 °C	
Operating mode	short-time operation S2, 25 % duty cycle	DIN 57530, VDE 0530 part 1
Interference protection class	category C3	EN 61800-3
Protection category	IP50, IP54, IP65	DIN VDE 0470
Weight	approx. 3.2 kg	

Electrical data

Motor/control data

Feature	Technical data	Additional information
Voltage supply	24 V DC $\pm 20\%$	with inverse-polarity protection
Power consumption, fed	approx. 160 W	
Rated current	6.5 A	with output value 100 %
Idle current	350 mA $\pm 20\%$	

Encoder data

Feature	Technical data	Additional information
Resolution	1024 increments/revolution	10 bit
Number of revolutions	254 4094	8 bit (rounded) 12 bit (rounded)

Pin assignment

Motor/network

Signal	EX	E1 (terminal)
+Ub	1	X1.1 X1.2
Enable	2	X3.5
GND	3	X1.3 X1.4
Screen		X1.5 X1.6

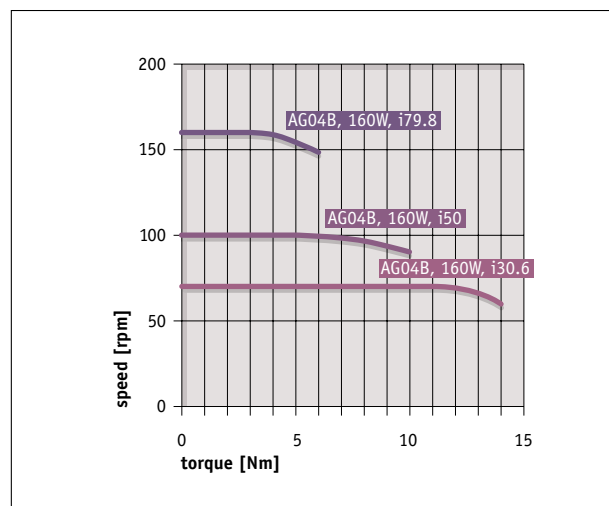
Fieldbus

Signal	EX	E1 (terminal)
do not connect!	1	
BUS A	2	X2.2, X2.9
do not connect!	3	
BUS B	4	X2.1, X2.10
do not connect!	5	X2.3, X2.4, X2.5, X2.6, X2.7, X2.8

Inputs

Signal	EX	E1 (terminal)
Limit switch 1	1	X3.1
Limit switch 2	2	X3.2
Input 1	3	X3.3
Input 2	4	X3.4
N.C.	5-7	
Enable		X3.5
EXT_GND		X3.6
GND		X3.7

Performance curve



Order

Order table

Feature	Order data	Specification	Additional information
Gear ratio	70.8	i = 70.8	approx. 14 Nm at 60 rpm
	50	i = 50.0	approx. 10 Nm at 90 rpm
	30.6	i = 30.6	approx. 6 Nm at 150 rpm
		others on request	
Motor/brake	160W/MB	160 W EC motor with brake	
	160W/OB	160 W EC motor without brake	
Protection category	IP50		
	IP54		
	IP65		
Shaft design/diameter	KR/20	clamp ring Ø 20 mm stainless steel hollow shaft	
	KR/14	clamp ring Ø 14 mm stainless steel hollow shaft	
		others on request	
Type of connection	EX	industry connector (2x M12, 2x M16)	without network output
	E1/PG	terminal box (5x PG9)	with network output
Number of revolutions	254	8-bit (rounded)	254 revolutions
	4094	12-bit (rounded)	4094 revolutions

Order code

AG04B - - - - - B - - - PB - SW

A B C D E F

Scope of delivery: AG04B, User information, CD (manual, GSD file)

Accessories:

Mating connectors
S7 module

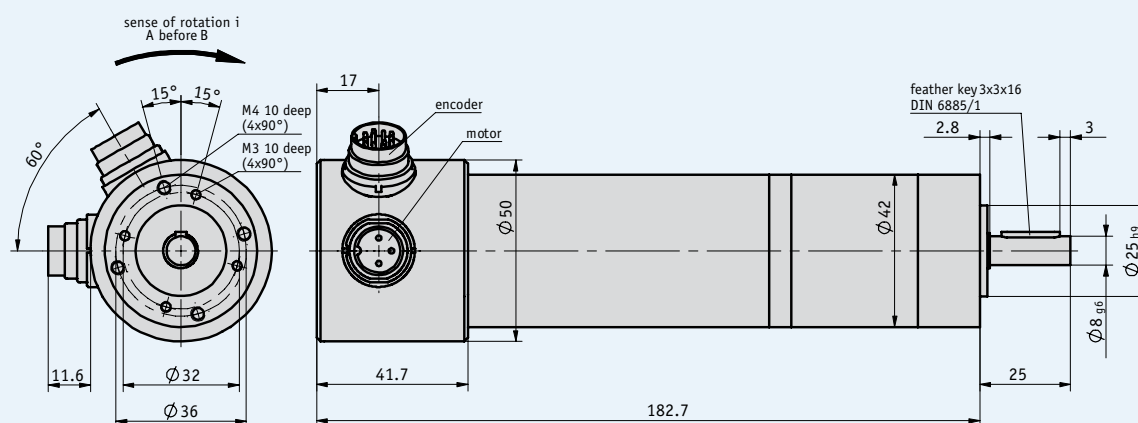
Page 44
on request

Additional information:

General information and areas of application

Page 4 cont.

- Solid 10 mm shaft with feather
- Integrated magnetic position encoder



Feature	Technical data	Additional information
Shaft	steel	
Housing	steel, aluminum	
Flanges	aluminum	
Nominal torque	4.2 Nm, 140 rpm	with i = 45.56
Shock resistance	50 g, 11 ms	DIN EN 60068-2-27
Vibration resistance axial, radial	10 g, 50 Hz	DIN EN 60068-2-6
Operating temperature	-10 ... +80 °C	condensation inadmissible
Operating mode	short-time operation S2, 25 % duty cycle	DIN 57530, VDE 0530 part 1
Interference protection class	EN 61000-6-2, EN 61000-6-4	
Protection category	IP40	according to DIN VDE 0470
Weight	approx. 1.1 kg	

Electrical data

Motor data

Feature	Technical data	Additional information
Motor voltage supply	0 ... 24 V DC	
Power consumption, fed	77 W	
Rated current	4.6 A ±20 %	

Encoder data

Feature	Technical data	Additional information
Voltage supply encoder	24 V DC ±20 %	use terminating resistors ≥470 Ω
Encoder	magnetic	25 pulses/revolution (motor shaft)
Power consumption encoder	<70 mA	
Output circuit	line driver (A, B, /A, /B)	LD 24 V DC

Pin assignment

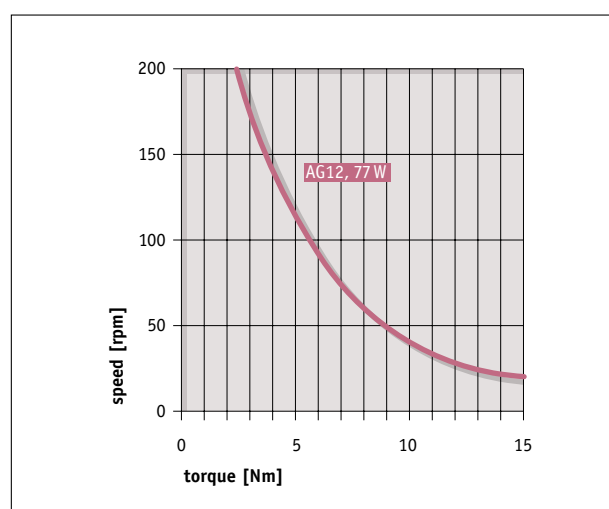
Motor

Signal	PIN
+	1
N.C.	2
-	3

Encoder

Signal	PIN	Additional information
/B	A	
+SUB	B	sensor
A	E	
/A	F	
B	H	
GND	K	
SGND	L	sensor
+UB	M	
N.C.	C, D, G, I	

Performance curve



4.1

Order

Calculation formula

Pulse number/revolution on the driving shaft

$$\text{pulses/revolution} = i \times 25$$

i = gear ratio

Order table

Feature	Order text	Specification	Additional information
Gear ratio	45.56 A	i = 45.56 others on request	

Order code

AG12 - -

Scope of delivery: AG12, User information

Accessories:

Mating connectors
Motor control MS02

Page 44
Page 38

Additional information:

General information and areas of application

Page 4 cont.

4.2



4.1 | Actuators

3

4.2 | Accessories

Products	Motor Control Module MS02	38
	Programming Tool PT232	40
	Cable Adaptor KA232	41
	Programming Tool PT485	42
	Cable Adaptor KA485	43
	Mating Connectors	44
	Cable extension KV02S0	47
	Cable extension KV03S0	48
	Cable extension KV04S0	49
	Cable extension KV07S0	50
	Cable extension KV08S0	51
	Cable extension KV12S0	52

4.3 | Product index, Contact information

54

4.1

4.2

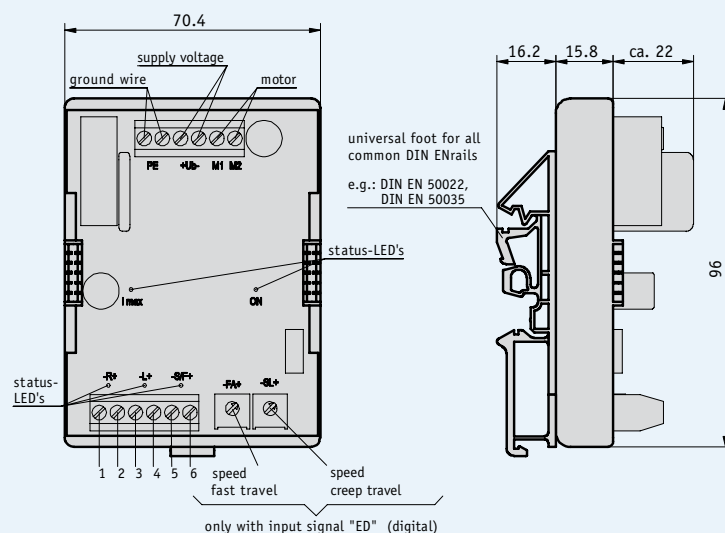
4.3

Profile

- Easy mounting (top-hat rail)
- Variable control variants
- Use with different positioning controls
- Fast or creep motion continuously variable
- Pulse width modulation (PWM) for 24 V DC actuators



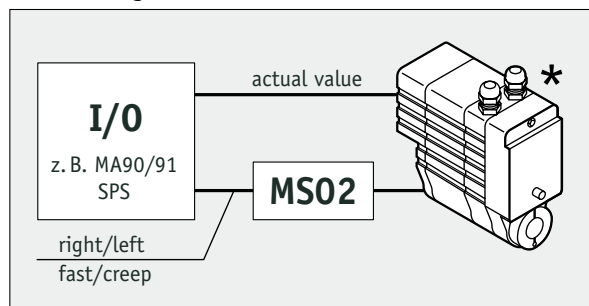
4.2



Mechanical data

Feature	Technical data	Additional information
Temperature range	0 ... +50 °C	
Humidity	0 ... 95 % rF, condensation inadmissible	

Function diagram



* can be used with AG01, AG02, AG12

Electrical data

Feature	Technical data	Additional information
Supply voltage	24 V DC $\pm 20\%$ (regulated)	with LED indicator
Motor current (continuous)	3/5/6 A (max. 12 A peak)	
PWM (pulse width modulation)	~16 kHz, continuous, 0 ... 100 %	soft start
Inputs	digital, analog	digital with LED indicator
Digital inputs	+15 ... +30 V, typically 10 mA	
Analog inputs	0 ... +10 V; -10 ... +10 V	impedance >1.3 M Ω
Protection	inverse-polarity prot., overcurrent prot.	with multi-fuse and LED indicator

Pin assignment

Terminal board

digital	Analog unipolar	Analog bipolar	PIN
Clockwise ground	enable ground	enable ground	1
Clockwise plus	enable plus	enable plus	2
Counter-clockwise ground	cw/ccw ground	N.C.	3
Counter-clockwise plus	cw/ccw plus	N.C.	4
Fast/creep ground	analog ground	analog ground	5
Fast/creep plus	analog 0 ... +10 V	analog -10 ... +10 V	6

Order

Order table

Feature	Order text	Specification	Additional information
Load current	3A	A	others on request, max. 12 A
	5A		
	6A		
Input signal	ED	B	digital
	EUP		analog unipolar
	EBP		analog bipolar

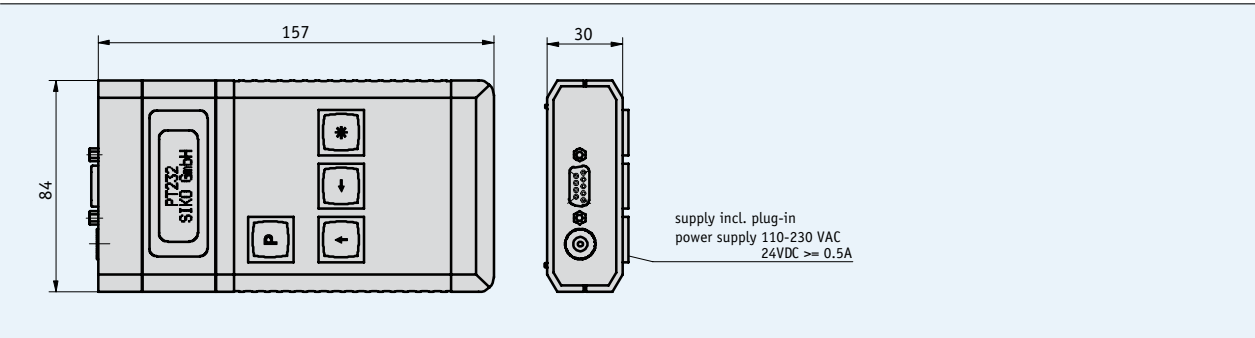
Order code

MS02 - -
A B

Scope of delivery: MS02, User information

Profile

- Illuminated 2-line plain text LC display
- Easy handling thanks to a clear menu structure
- Unambiguous programming and reading of parameters
- Can be connected directly to the appropriate terminal device via KA232 cable adaptor



Mechanical data

Feature	Technical data	Additional information
Supply	24 V DC with inverse-polarity protection	round low-voltage connector (5.5 mm external/2.1 mm internal)
Display	LCD dot matrix, backlit	2x12 characters
Temperature range	0 ... +50 °C	

Pin assignment

■ Supply

Signal	PIN
+UB	internal
GND	external

■ D-SUB

Signal	PIN
+UB	1
RXD	2
TXD	3
GND	5
	4, 6-9

Order

■ Order code

PT232

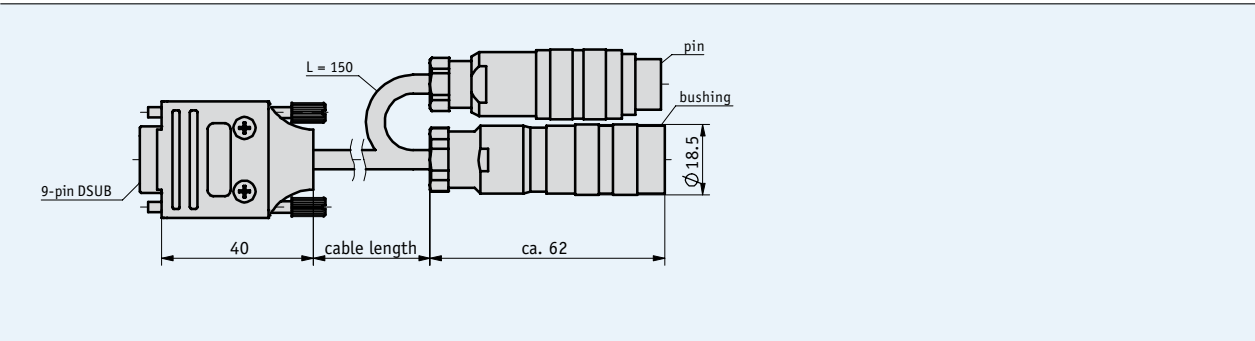
Scope of delivery: PT232, User information,
Connector power pack 110 ... 230 V AC

Accessories: KA232 Cable adaptor Page 41

Additional information: General information and areas of application Page 4 cont.

Profile

- Ready-to-use cable connection
- Cable lengths up to 5 m



4.2

Mechanical data

Feature	Technical data	Additional information
Cable sheath	PVC	
Temperature range	-30 ... +80 °C	

Pin assignment

■ KV02S0

Cable number	PIN
1 (black)	1
	2
2 (black)	3

Order

■ Order table

Feature	Order text	Specification	Additional information
Cable length in m	... A	1.0, 2.0, 5.0	

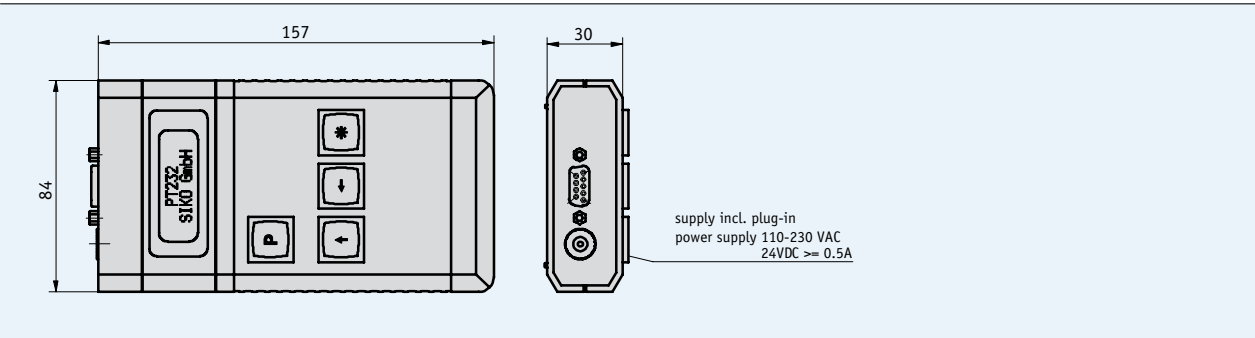
■ Order code

KA232 - AG02/S1/00 - A

Scope of delivery: KA232

Profile

- 2-line illuminated LC plain text display
- Easy handling thanks to a clear menu structure
- Unambiguous programming and reading of parameters
- Can be connected directly to the appropriate terminal device via KA485 cable adaptor



Mechanical data

Feature	Technical data	Additional information
Supply	24 V DC with inverse-polarity protection	round low-voltage connector (5.5 mm external/2.1 mm internal)
Display	LCD dot matrix, backlit	2x12 characters
Temperature range	0 ... +50 °C	

Pin assignment

■ Supply

Signal	PIN
+UB	internal
GND	external

■ D-SUB

Signal	PIN
+UB	1
DÜA	3
GND	5
DÜB	8
	2, 4, 6, 7, 9

Order

■ Order code

PT485

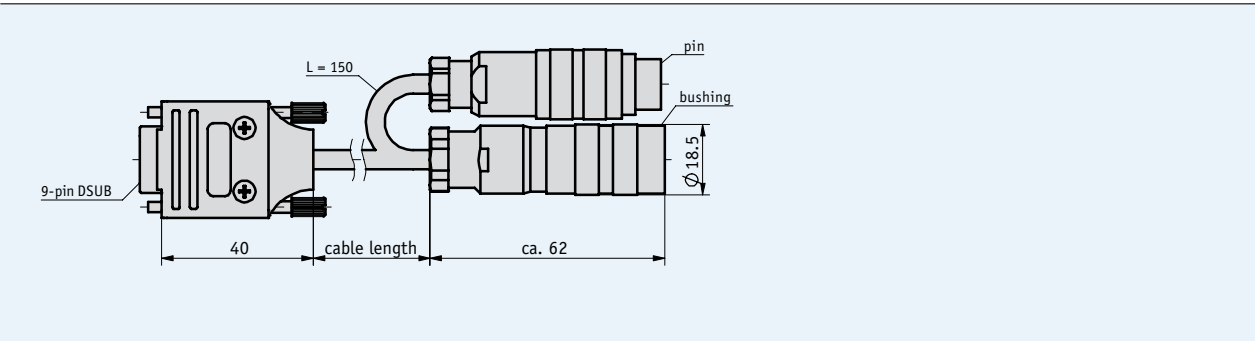
Scope of delivery: PT485, User information,
Connector power pack 110 ... 230 V AC

Accessories:
Cable adaptor KA485 Page 43

Additional information:
General information and areas of application Page 4 cont.

Profile

- Ready-to-use cable connection
- Cable lengths up to 5 m



4.2

Mechanical data

Feature	Technical data	Additional information
Cable sheath	PVC	
Temperature range	-30 ... +80 °C	

Pin assignment

■ KV02S0

Cable number	PIN
1 (black)	1
	2
2 (black)	3

Order

■ Order table

Feature	Order text	Specification	Additional information
Cable length in m	... A	1.0, 2.0, 5.0	

■ Order code

KA485 - AG02/S3/00 - A - OS

Scope of delivery: KA485

DriveLine accessories

■ Matrix for mating connectors

Mating connectors are available for a number of DriveLine actuators. The appropriate pin assignments can be found on the product pages for actuators.


					Actuators								
					AG01 incre- mental	AG01 analog	AG02 incre- mental	AG02 analog	AG02 fieldbus	AG03 incre- mental	AG03 fieldbus	AG04B fieldbus	AG12 incre- mental
Bild	PIN	Ø cable	Order data										
Mating connectors, straight													
Encoder/ digital inputs	1	7	4 ... 6	76141				•				•	
Encoder	2	12	6 ... 8	76572			•		•				•
Encoder	3	8	3.5 ... 5	81351	•		•						
Potentiometer	3	3	3.5 ... 5	81487		•							
Motor/network	1	3	4 ... 6	82182			•	•	•			•	•
Motor	3	4	3.5 ... 5	83447	•	•							
Encoder	4	8	6 ... 8	83525						•			
Network	4	4	6 ... 8	83526						•	•		
Motor control	5	8	6 ... 8	83527						•			
Profibus IN	6	5	6 ... 8	83991					•		•	•	
Profibus OUT	7	5	6 ... 8	83992					•		•	•	
Mating connectors, offset													
Digital inputs	8	7	4 ... 6	78088				•				•	
Encoder	8	12	6 ... 8	79666			•		•				•
Motor/network	8	3	4 ... 6	81363			•	•	•			•	•
Motor	9	4	3.5 ... 5	82247		•							
Potentiometer	9	3	3.5 ... 5	82366		•							
Profibus IN	10	5	4 ... 8	82804					•			•	
Profibus OUT	11	5	4 ... 8	82805					•			•	
CANopen IN	10	5	4 ... 8	83006					•				
CANopen OUT	11	5	4 ... 8	83007					•				
Bus terminator, straight													
Profibus	12	5		82816					•				
CAN bus	13	5		82815					•				

Order

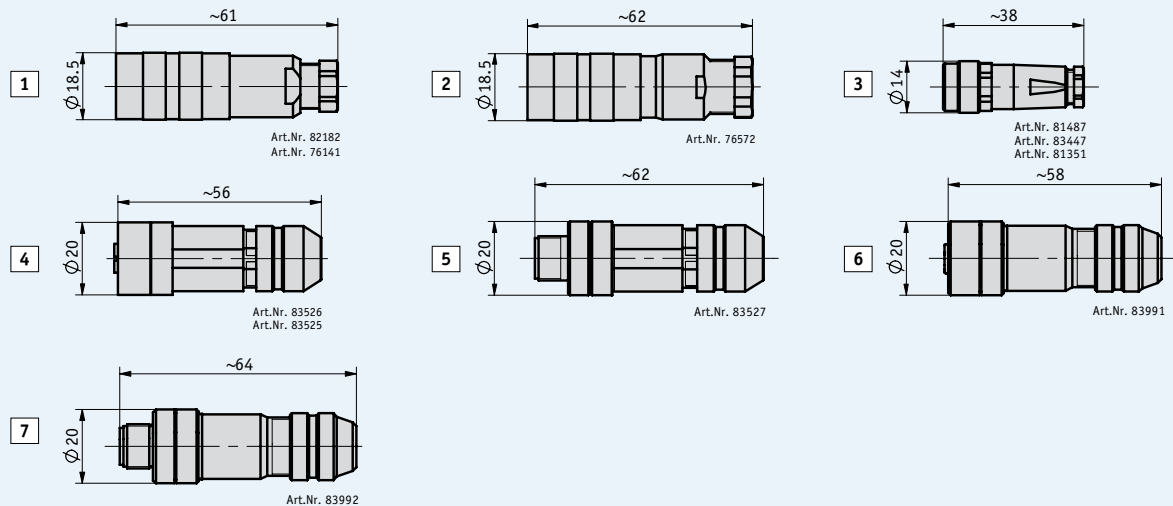
■ Order code (see Product matrix)

Profile

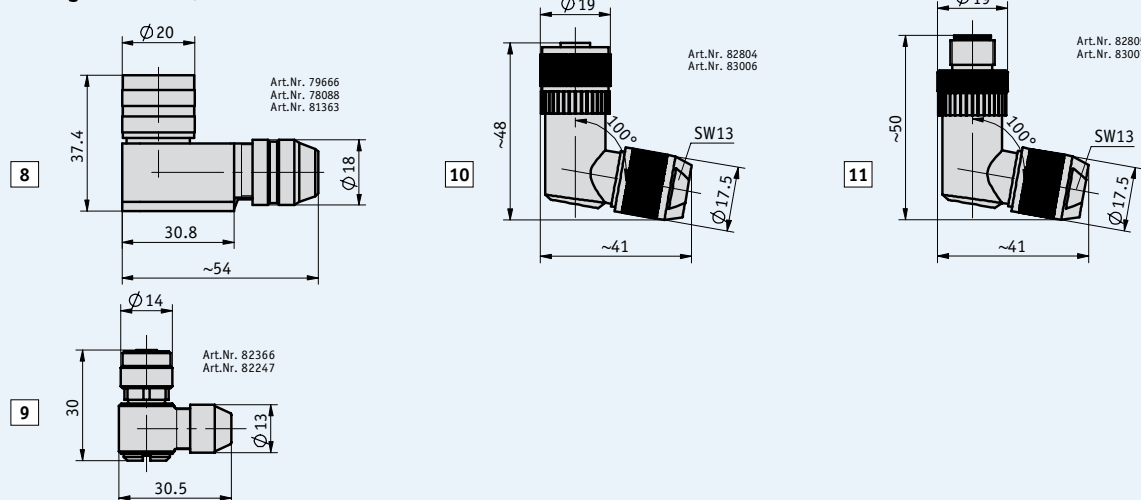
- Mating connectors, straight
- Mating connectors, offset
- Bus terminator, straight

 When screwed, the distance to the device will increase by approx. 3 mm.

Mating connectors, straight



Mating connectors, offset



Bus terminator, straight



4.2

DriveLine accessories


■ Matrix for cable extensions

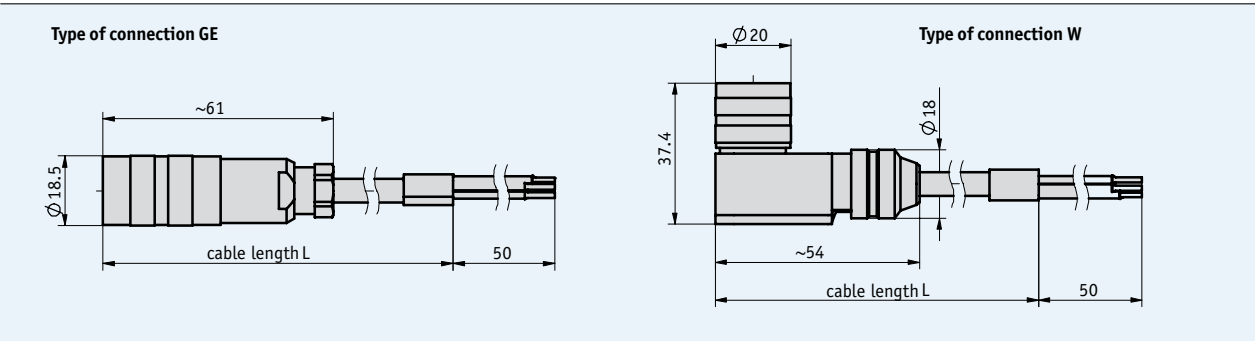
Cable extensions are available for a number of DriveLine actuators. The appropriate pin assignments can be found on the relevant product pages (see matrix).

			Actuators						
			AG01 incre- mental	AG01 analog	AG02 incre- mental	AG02 analog	AG02 fieldbus	AG12 incre- mental	
Page	Cable sheath	Products							
Cable extension									
47	PVC	KV02S0			•	•	•	•	
48	PUR	KV03S0		•					
49	PVC	KV04S0	•	•					
50	PUR	KV07S0				•			
51	PVC	KV08S0	•		•				
52	PUR	KV12S0			•		•	•	

Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



4.2

Mechanical data

Feature	Technical data	Additional information
Cable sheath	PVC	
Temperature range	-30 ... +80 °C	

Pin assignment

KV02S0	
Cable number	PIN
1 (black)	1
	2
2 (black)	3

Order

■ Order table

Feature	Order text	Specification	Additional information
Type of connection	GE	straight connector	
	W	angle connector	not for KV12S1
Cable length	...	1 ... 20 m, in steps of 1 m	


■ Order code

KV02S0 - -
 A B

Scope of delivery: KV02S0, User information

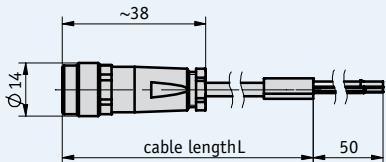
Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

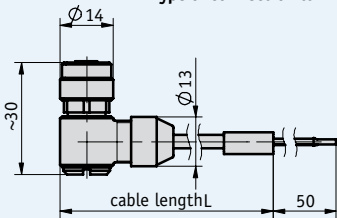
 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



Type of connection GE



Type of connection W



Mechanical data

Feature	Technical data	Additional information
Cable sheath	PUR	
Temperature range	-30 ... +80 °C	

Pin assignment

■ KV03S0

Cable color	PIN
brown	1
green	2
white	3

Order

■ Order table

Feature	Order text	Specification	Additional information
Type of connection	GE	straight connector	
	W	angle connector	not for KV12S1
Cable length	...	1 ... 20 m, in steps of 1 m	


■ Order code

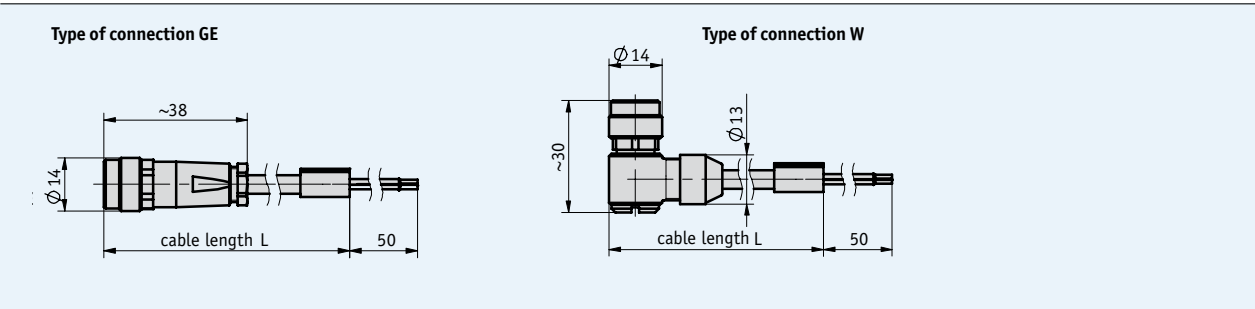
KV03S0 - -
 A B

Scope of delivery: KV03S0, User information

Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



4.2

Mechanical data

Feature	Technical data	Additional information
Cable sheath	PVC	
Temperature range	-30 ... +80 °C	

Pin assignment

Cable color	PIN
white	1
brown	2
green	3
yellow	4

Order

■ Order table

Feature	Order text	Specification	Additional information
Type of connection	GE	straight connector	
	W	angle connector	not for KV12S1
Cable length	...	1 ... 20 m, in steps of 1 m	


■ Order code

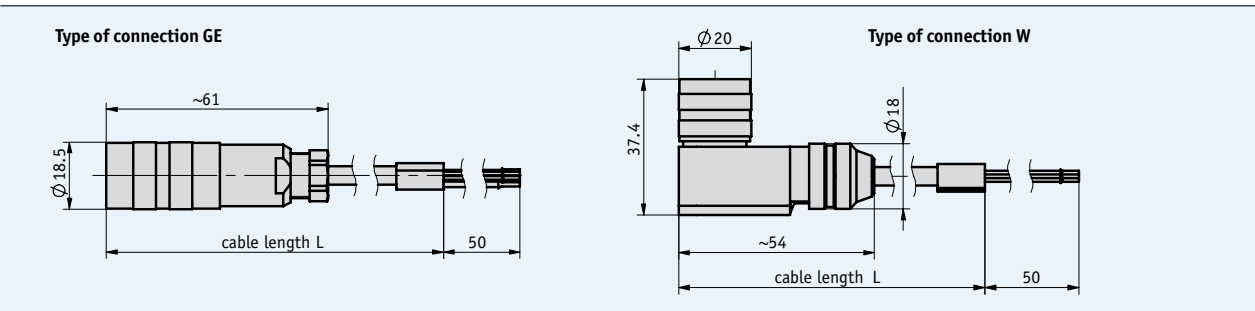
KV04S0 - -

Scope of delivery: KV04S0, User information

Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



Mechanical data

Feature	Technical data	Additional information
Cable sheath	PUR	
Temperature range	-30 ... +80 °C	

Pin assignment

■ KV07S0

Cable color	PIN
white	1
brown	2
green	3
yellow	4

Cable color	PIN
gray	5
pink	6
blue	7

Order

■ Order table

Feature	Order text	Specification	Additional information
Type of connection	GE	A straight connector	
	W	angle connector	not for KV12S1
Cable length	...	B 1 ... 20 m, in steps of 1 m	


■ Order code

KV07S0 - -

Scope of delivery: KV07S0, User information

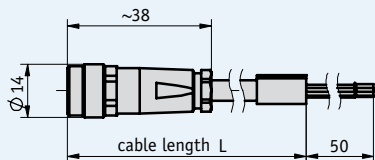
Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



Type of connection GE



4.2

Mechanical data

Feature	Technical data	Additional information
Cable sheath	PVC	
Temperature range	-30 ... +80 °C	

Pin assignment

■ KV08S0

Cable color	PIN
white	1
brown	2
green	3
yellow	4

Cable color	PIN
gray	5
pink	6
blue	7
red	8

Order

■ Order table

Feature	Order text	Specification	Additional information
Cable length	...	A 1 ... 20 m, in steps of 1 m	


■ Order code

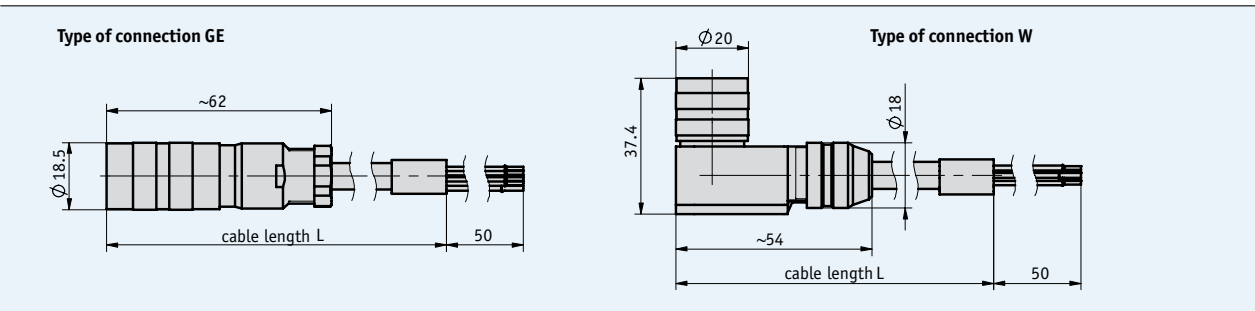
KV08S0 -

Scope of delivery: KV08S0, User information

Profile

- Ready-to-use cable connection
- Cable lengths up to 20 m

 With increasing cable length, voltage drop is to be expected in case of high current load resulting in reduced drive performance. This should be taken into account for the electrical design.



Mechanical data

Feature	Technical data	Additional information
Cable sheath	PUR	
Temperature range	-30 ... +100 °C	

Pin assignment

■ KV12S0

Cable color	PIN
blue	A
violet	B
green	C
red	D
yellow	E
pink	F

Cable color	PIN
red-blue	G
white	H
gray-pink	J
gray-pink	K
black	L
brown	M

Order

■ Order table

Feature	Order text	Specification	Additional information
Type of connection	GE	A straight connector	
	W	angle connector	
Cable length	...	B 1 ... 20 m, in steps of 1 m	

■ Order code

KV12S0 - -

Scope of delivery: KV12S0, User information

4.3



4.1 Actuators	3
4.2 Accessories	36

4.3 Product index, Contact information	56
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4.1

4.2

4.3

Actuators

PT485

AG04B

AG01

MS02

Device	Type	Page
A		
AG01	Actuator, incremental, hollow shaft	10
AG01	Actuator, analog, hollow shaft	13
AG02	Actuator, incremental, hollow shaft	16
AG02	Actuator, analog, hollow shaft	19
AG02	Actuator, fieldbus, hollow shaft	22
AG03	Actuator, incremental, hollow shaft	25
AG03	Actuator, fieldbus, hollow shaft	28
AG04B	Actuator, fieldbus, hollow shaft	31
AG12	Actuator, incremental, solid shaft	34
K		
KA232	Cable adaptor	41
KA485	Cable adaptor	43
KV02S0	Cable extension	47
KV03S0	Cable extension	48
KV04S0	Cable extension	49
KV07S0	Cable extension	50
KV08S0	Cable extension	51
KV12S0	Cable extension	52
M		
	Mating connectors	44
MS02	Motor control	38
P		
PT232	Programming Tool	40
PT485	Programming Tool	42

4.3

Germany

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