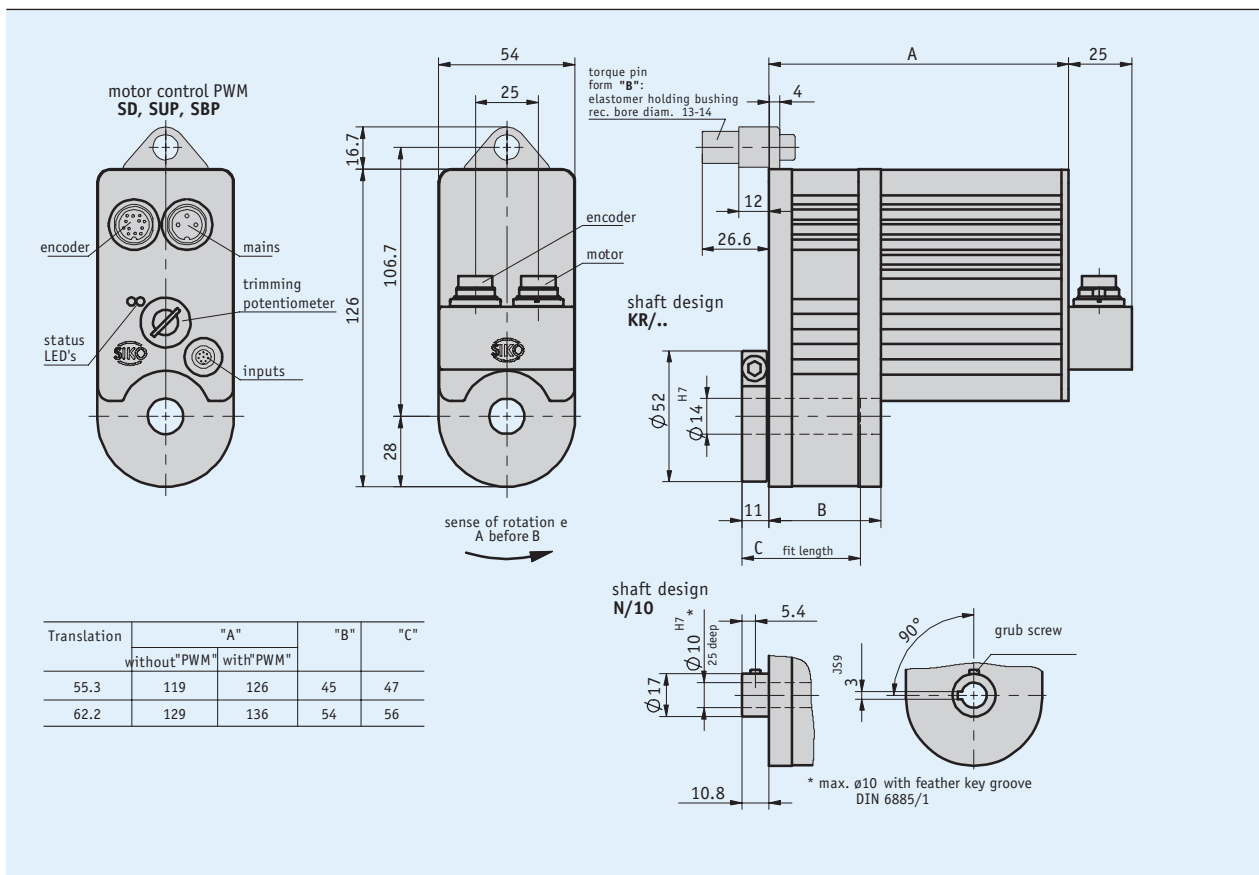
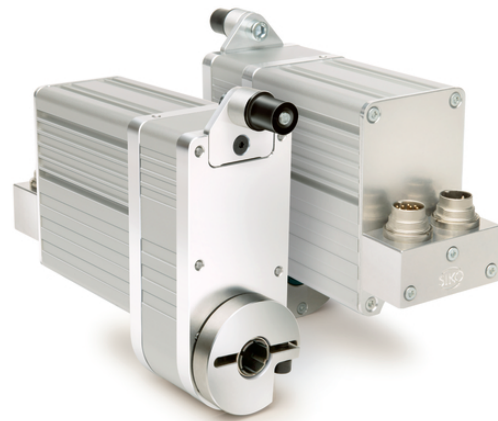


## Profile

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



## Mechanical data

Feature	Technical data	Additional information
Shaft	black-finished steel	
Housing	aluminum	
Nominal torque/rated speed	5 Nm at 80 rpm	i = 55.3 (70 W-M motor)
	8 Nm at 120 rpm	i = 55.3 (150 W motor)
	6 Nm at 70 rpm	i = 62.2 (70 W-M motor)
	9 Nm at 110 rpm	i = 62.2 (150 W motor)
Operating mode	S3 intermittent operation: 25 % DC, 10 min.	EN 60034-1
Weight	~1.6 kg	(incremental)

## Electrical data

### Motor

Feature	Technical data	Additional information
Operating voltage	0 ... 24 V DC	reverse polarity protected
	24 V DC $\pm 10\%$	reverse polarity protected, with PWM motor control
Power input	70 W	
	150 W	
Rated current	5.8 A $\pm 4\%$ (150 W motor)	max. load current $i = 55.3 / i = 62.2$
	2.9 A $\pm 4\%$ (70 W-M motor)	max. load current $i = 55.3 / i = 62.2$
Type of connection	2x M16 plug connectors	3-pole, 1x pin; 12-pole, 1x pin

### PWM motor control

Feature	Technical data	Additional information
Operating voltage	24 V DC $\pm 20\%$ controlled, with LED indicator	reverse polarity protected
Inputs	digital with LED indicator / analog	
Analog inputs	0 ... 10 V	impedance $> 1.3\text{ M}\Omega$
	-10 ... 10 V	impedance $> 1.3\text{ M}\Omega$
Digital inputs	15 ... 30 V, typical 10 mA	
PWM (Pulse width modulation) input	$\sim 16\text{ kHz}$ , continuously variable, 0 ... 100 %	soft start

### Encoder

Feature	Technical data	Additional information
Operating voltage	5 V DC $\pm 5\%$	LD5 position encoder, no reverse polarity protection
	24 V DC $\pm 20\%$	LD24 + OP, position encoder, reverse polarity protected
Current consumption	$< 50\text{ mA}$	LD5 position encoder
	$< 25\text{ mA}$	LD24 + OP position encoders
Output circuit	Line Driver (RS422)	LD5 + LD24 position encoders
	Push Pull (OP)	OP position encoder
Output signals	A, B, I, /A, /B, /I	
Pulse frequency	$\leq 20\text{ kHz}$	

## Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	0 ... 50 °C	
	0 ... 70 °C	without motor control, with position encoder
	0 ... 80 °C	without motor control, without position encoder
Storage temperature	-20 ... 80 °C	
Relative humidity		condensation inadmissible
EMC	EN 61800-3, second environment	interference resistance / immission
	EN 61800-3, C3	emitted interference / emission
Protection category	IP50	EN 60529, mating connectors mounted
Shock resistance	500 m/s <sup>2</sup> , 11 ms	EN 60068-2-27
Vibration resistance	100 m/s <sup>2</sup> , 5 ... 150 Hz	EN 60068-2-6

## Pin assignment

### Motor/voltage supply

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

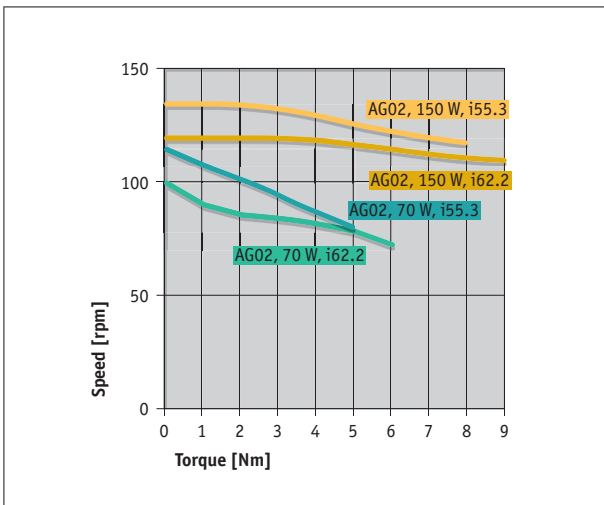
### Encoder

LD24	LD5	PIN
/B	/B	A
nc	+SUB (sensor)	B
/I	/I	C
I	I	D
A	A	E
nc	nc	G
/A	/A	F
B	B	H
nc	nc	J
GND	GND	K
nc	SGND (sensor)	L
+Ub	+Ub	M

### PWM motor control

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

## Performance curve



## Order

### Ordering table

Feature	Ordering data	Specification	Additional information
Gear ratio	55.3	i = 55.3	
	62.2	i = 62.2	
Motor performance	150W	150 W	
	70W-M	70 W	only with SD, SUP or SBP motor control
Shaft design/diameter	KR/14	clamping ring, ø14 mm	
	N/10	keyway, ø10 mm	with i=55.3, other transmissions on request
Torque pin	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 1000 Impulse	+10 ... +30 V DC
	LD5	incremental 1000 Impulse	+5 V DC ±5 %
	OP	push-pull with inverting	+10 ... +30 V DC
	0	without	only with LR "Position of electrical connection"
Motor control pwm	OMS	without	only with 150 W motor power
	SD	digital input	
	SUP	analog input, unipolar 0 ... +10 V	
	SBP	analog input, bipolar -10 ... +10 V	

### Order key

AG02 Incremental -  -  -  -  -  -  -  -  -  -

**Scope of delivery:** AG02 Incremental, Mounting instructions

#### Accessories:

Cable extension KV02S0

Cable extension KV08S0

Cable extension KV12S0

Motor control module MS02

Electronic display MA55

Electronic display MA48

Electronic display MA10/4

Mating Connector Overview

Mating connector, motor/voltage supply, 3-pole, socket

Mating connector, motor/voltage supply, 3-pole, angle socket

Mating connector, encoder, 12-pole, socket

Mating connector, encoder, 12-pole, angle socket

Mating connector, motor control, 8-pole, socket

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