

MAGLINE^{MICRO}
MAGLINE^{BASIC}
MAGLINE^{MACRO}
MAGLINE^{ROTO}



Absolute
Magnetic Length Measuring Systems:
...precision
with each step



MAGLINE^{MICRO}

Especially suitable for precise and highly dynamic processes on linear guide systems and applications in the field of motive power engineering. MAGLINE^{MICRO} is a magnetically sensing incremental system with programmable resolutions of up to 1 μm and a measuring accuracy of up to 10 μm . MAGLINE^{MICRO} operates without wear, with measuring values captured contactlessly. This makes the system a robust and economic alternative to optical measuring systems.

mm

MAGLINE^{BASIC}

This system combines all advantages of the contactless magnetic measuring technology and offers resolutions of up to 5 μm and a measuring accuracy of up to 50 μm . MAGLINE^{BASIC} is available both as an incremental or absolute measuring system. MAGLINE^{BASIC} measures incrementally as well as absolutely and either provides digital encoder signals or directly displays the values measured at the position the sensor is placed.

The incremental measuring system: the easy and economic solution for standard mechanical engineering applications.

The absolute measuring system: for all applications that must be able to detect movements even without operating voltage.

MAGLINE^{MACRO}

Especially designed for very long measuring lengths. A system for measuring lengths of 160 meters and more – incrementally or absolutely. Digital signal outputs allow data transmission of the measured values via the standard interfaces with a resolution and accuracy of up to 1 mm to a display unit or a master control.

MAGLINE^{ROTO}

Primarily developed for direct angle and rotation recording with all the advantages of magnetic, contactless sensing. Appropriate sensors register the incremental segmentation of magnet rings at a maximum resolution of 40,000 pulses per revolution.

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MAGLINE^{BASIC} Absolute Magnetic Length Measuring System

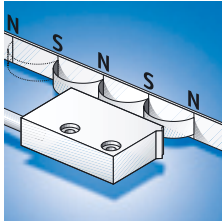
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MAGLINE: innovative systems,

Magnetic length and angle measurement.

contactless and reliable.



The functional principle of MAGLINE. Contactless scanning of magnetic fields and translation of the measured analog values – either in absolute or incremental output signals.

MAGLINE is a classic example of the innovative energy at SIKO.

As a complete system, the magnetic and, above all, contactless measuring technology for the detection of linear and radial positions is equally suitable for sensing the number of revolutions or angles. Measurement under extreme industrial conditions is demanding with respect to reliability and reproducibility. Here, the MAGLINE solution proves its superiority: dust, oil, grease, vibrations or shock are not a hindrance.

A proven and mature product, the BASIC series offers a wide spectrum of components for incremental and absolute measurement down to the μm range. All measured values can be displayed directly or used by customer controls. For this purpose, MAGLINE^{BASIC} has interfaces available for integration into nearly every industrial environment.

The MICRO series is designed especially for precise and highly dynamic processes with high requirements on the measured value acquisition in the μm range. It is an economical alternative to optical systems in linear guide and drive engineering.

At the other end of the scale, the MACRO system is designed especially for long measuring distances and finds its main areas of use in storage and conveyor technology.

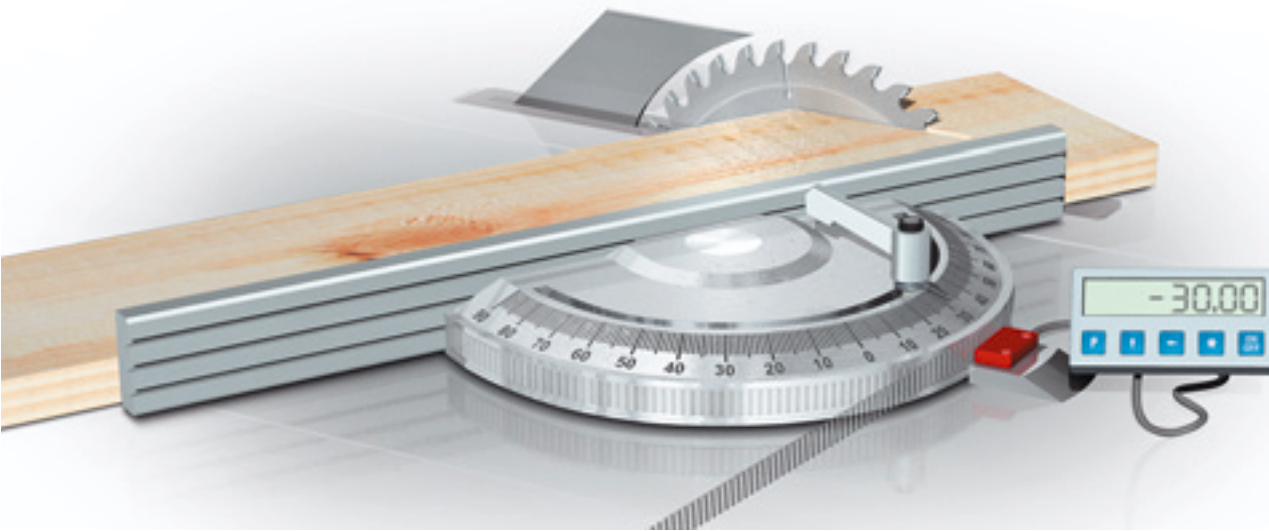
The ROTO series forms the alternative for conventional optical rotation encoder systems, particularly when the exact number of rotations or angle measurements under inhospitable conditions are required. This systems performs reliably even in the oil bath of a hydraulic pump.

A large number of components with various dimensions and specifications make the four MAGLINE systems versatile and very flexibly integrateable measurement solutions, with easy mounting and handling of all systems. MAGLINE systems from SIKO are customer-friendly products, which are durable and economical in every respect.

Features	BASIC	MICRO	MACRO	ROTO
Scale	flexible magnetic band	flexible magnetic band	flexible magnetic band	magnetic ring
Measurement	incremental / absolute	incremental	incremental / absolute	incremental
Measuring length	unlimited	up to 4 000 mm / unlimited	up to 320 m	
Resolution	max. 5 μm	max. 1 μm		max. 20 000 pulses / rev
Precision class	max. 50 μm	max. 10 μm	max. 1 mm	max. 0.1°
Repeat accuracy	max. 5 μm	max. 1 μm	max. 1 mm	

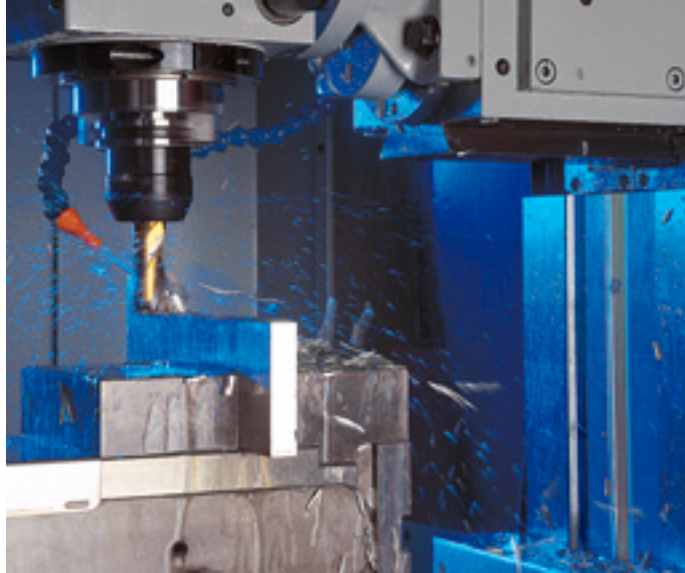


The magnetic band serves as the scale in the measurement system. For easy angle measurement, its flexible design enables also curved installation on a small radius.



Absolute and reproducible measured values allow safe and economical handling of raw materials.

The system's functionality remains uninfluenced even under the impact of shavings or lubricants.



Rotational speed as well as angle can be determined when balancing with ROTO, and pipes can be exactly formed preserving the angle.

MAGLINE systems can be directly mounted to positioners or processing mechanisms and therefore prevent measuring errors that can occur as a result of gearbox play or spindle tolerances. For long measurement distances of a processing unit or feeder, the tolerance field of the sensor unit forgives height impacts and, therefore, makes possible the use of existing guides for the attachment of the components. The unavoidable contamination on manufacturing machines is uncritical since functioning of MAGLINE is even guaranteed in the oil bath. Installation effort is low even for measurement values in the μm range. The same applies to the ROTO system: The ring-shaped scale is fastened on the shaft to be measured to enable radial gathering of the rotational movement by the sensor.

The magnetic band is quickly mounted and is well protected by a metal strip. A sensor is guided parallel and contactlessly to gather path information.

MAGLINE^{BASIC} Absolute data as a solution to movements during power Loss!

The magnetic linear system: insensitive to contamination.

The absolute measuring version of MAGLINE^{BASIC} offers one essential advantage compared with the incremental system: in case of power interruptions, eg. when the system is switched off and on again and the sensor position changed in the meantime, the correct position value is captured and translated, without having to reference the system again.



The measuring system consisting of magnetic sensor / band is a modern and economic alternative to standard rotary encoder systems with rack and pinion.

Function, setup and handling of the absolute magnetic measuring systems is similar to the incremental one. The absolute system offers the same advantages, eg. totally contactless scanning principle, easy mounting thanks to self-adhesive tape and individual cutting into lengths of the magnetic band.

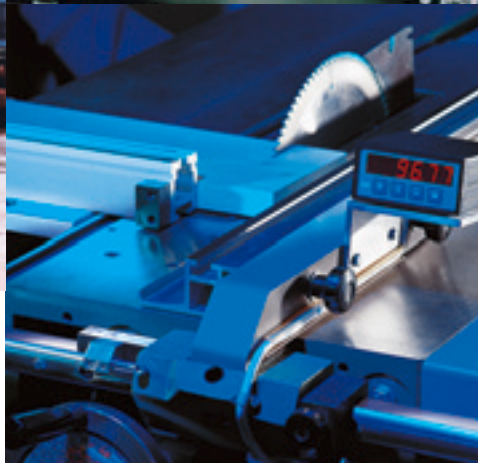
The flexible magnetic band – the system's scale – is magnetised according to a special, absolutely coded process. Information is captured at any position of the measuring track with a resolution

and repeatability of 10 µm. Initially after installation, the system needs to be aligned and calibrated.

A wide range of measuring displays is available for direct position indication on the machine. Via parallel, SSI or commercial bus interfaces (eg. Profibus), position values can, however, also be transmitted to all standard industrial control systems as is the case with conventional industrial absolute-value encoders.

MAGLINE^{BASIC}





The Absolute System Applications

The absolute systems of the MAGLINE^{BASIC} product line combine the advantages of the incremental system with those of an absolute measuring system: flexible use of the magnetic band for linear and angular measurement. Maintenance of even fairly generous mounting tolerances during integration of the system results in simple and economic solutions. The magnetoresistive measurement method is insensitive to contamination in daily use.

Completely sealed sensing elements without inner moving parts make the system resistant to shock and vibration.

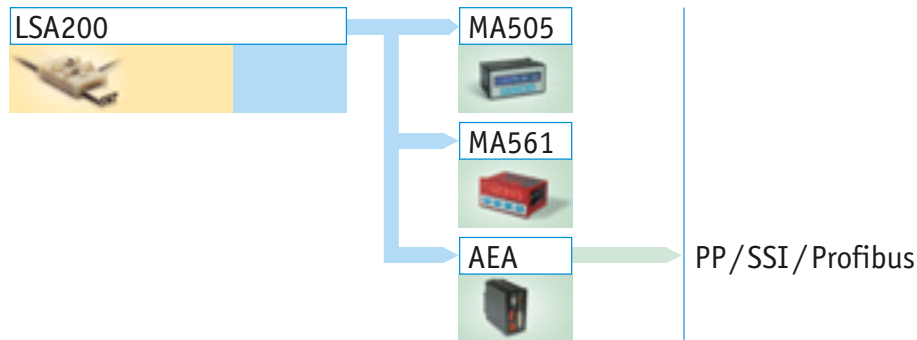
The signal translation electronics allow both direct position display, eg., on saws' limit stops or sledges, and via standard interfaces and bus systems (like SSI or Profibus) connection to master control systems.

Application and operating principles

MAGLINE^{BASIC} and its absolute components

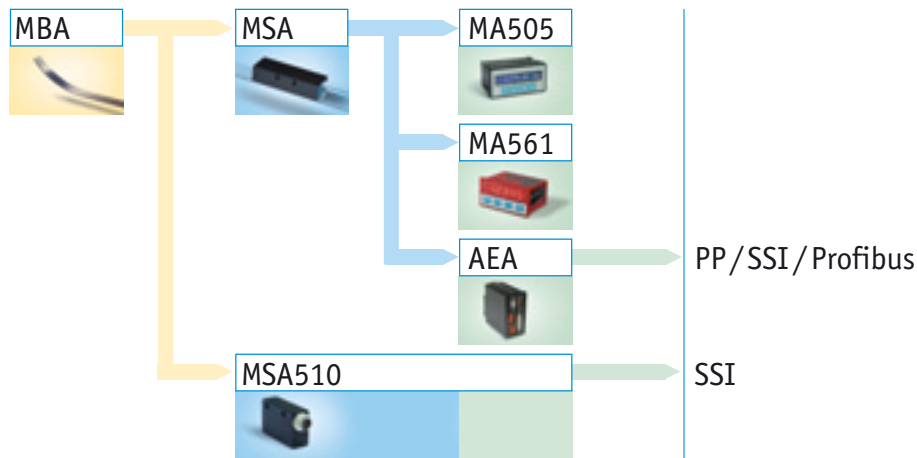
A) 1 000 mm maximum measuring length, **system accuracy** ± 0.025 mm related to overall measuring length

Magnetic strip	Sensor	Magnetic display/ Translation module	Customer technical requirements (counters, control devices,...)
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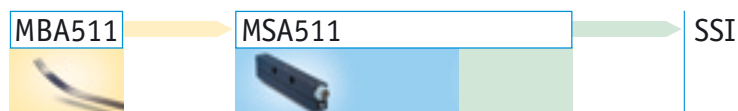
B) 5 120 mm maximum measuring length, **system accuracy** $(0.05 + 0.03 \times L)$ mm, **L** = length of magnetic strip in m

Magnetic strip	Sensor	Magnetic display/ Translation module	Customer technical requirements (counters, control devices,...)
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C) 20 480 mm maximum measuring length, **system accuracy** $\pm (0.1 + 0.03 \times L)$ mm, **L** = length of magnetic strip in m

Magnetic strip	Sensor	Magnetic display/ Translation module	Customer technical requirements (counters, control devices,...)
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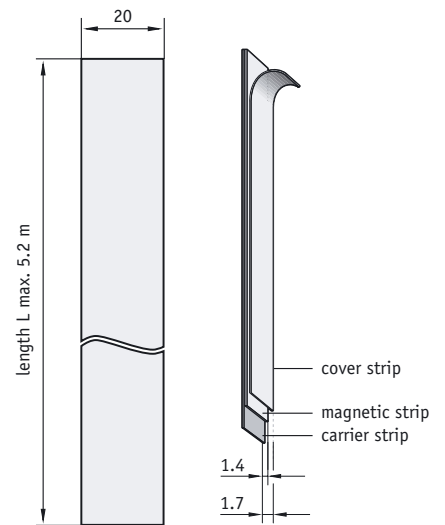
D) 90 m maximum measuring length, **system accuracy** $\pm (0.025 + 0.01 \times L)$ mm, **L** = length of magnetic strip in m

Magnetic strip	Sensor	Magnetic display/ Translation module	Customer technical requirements (counters, control devices,...)
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Magnetic strip MBA

The base material is absolutely coded at defined distances and firmly joined to the steel carrier strip. For fixing, a special adhesive tape is premounted. An additional stainless steel cover strip is also included as standard.



Features:

- easy mounting by glueing
- resistant to humidity
- insensitive to dust, shavings ...

Attention! For correct use, the magnetic strip must be longer than the actual measuring distance. The oversize length is 85 mm.

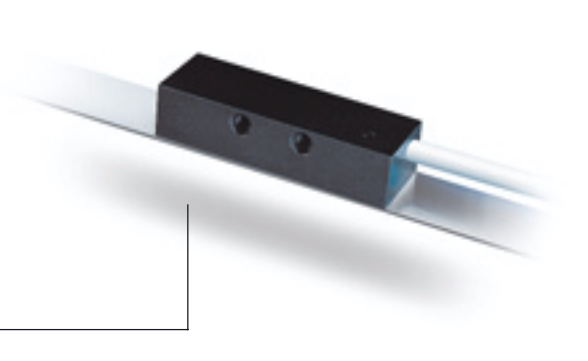
Feature	Ordering data	Technical data	Additional information
Length	... A	in m, max. 5.2 m, min. 0.2 m	incl. oversize length
Cover strip	AM A0 B	with without	standard
Width		20 mm	
Precision class		±50 µm	at T ₀ = 20 °C
Mounting		glued, with double-sided adhesive tape	
Operating temperature		0 ... +60 °C	
Storage temperature		-20 ... +80 °C	

Your order:

MBA - -

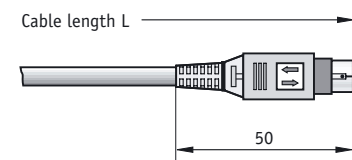
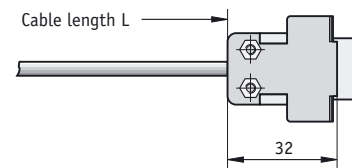
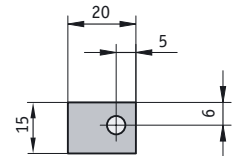
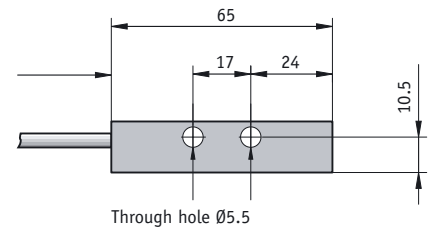
Magnetic sensor MSA

This sensor gathers the absolute length information of the coded MBA magnetic strip, transmitting it via the permanently connected sensor cable to the follower electronics.



Features:

- band/sensor gap max. 1 mm
- direct connection to magnetic display
- direct connection to translation module
- easy mounting and handling



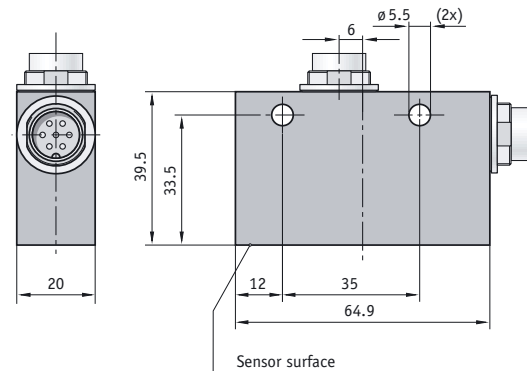
Feature	Ordering data	Technical data	Additional information
MSA Magnetsic sensor, type	A	A type	standard
Connection type	E8/2.0 E10	9-pin D-SUB, 2.0 m cable length Mini-DIN	standard , max. 20 m
Measuring length		max. 5120 mm	
Band/sensor gap		max. 1.0 mm	
Electrical connection		9 pin D-SUB	
Type of protection		IP67 according to DIN 40050	sensor head
Temperature ranges		operating temperature: 0 ... +60 °C	storage temperature: -20 ... +80 °C
Housing		transparent chromated aluminium	

Your order:

MSA - -

Magnetic sensor MSA510

This sensor gathers the absolute length information of the coded MBA magnetic strip and forms an absolute, linear distance or position measuring system for measuring lengths up to 5 120 mm.



Features:

- compact design with integrated translation module
- SSI interface
- measuring length up to 5 120 mm
- accuracy class 0.05 mm, resolution 0.01 mm
- strip/sensor gap max. 1.0 mm
- use with MBA magnetic strip

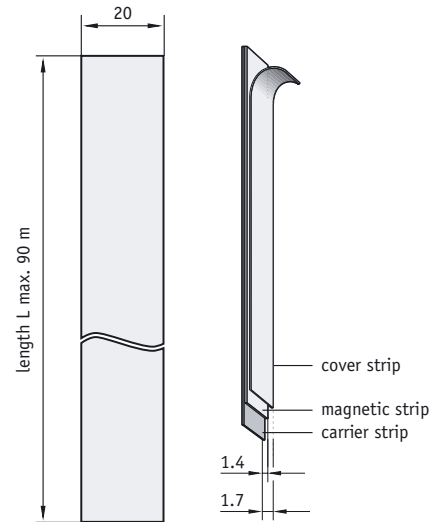
Feature	Ordering data	Technical data	Additional information
Output circuit	SSI	incl. RS485 service interface	standard
	RS485	SIKO standard protocol	
Cable outlet	I	on the side	standard
	II	upward	
Connection	EX	without mating connector, 7-pin round conn.	standard
	E1	flying lead	
	E8	cable with 9-pin D-SUB connector	
Cable length	1.0	0.2 - 20.0 m	standard , only for E1/E8
Measuring length		max. 5 120 mm	
Voltage supply		24 V DC $\pm 20\%$	
Power consumption		< 3.0 VA	
Travel speed		max. 5 m/s	
Resolution		0.01 mm	
System accuracy		$\pm (0.05 + 0.03 \times L)$ mm, L in m	at $T_U = 20\text{ }^\circ\text{C}$
Repeat accuracy		max. 0.01 mm	
Strip/sensor gap		max. 1.0 mm	
Cycle time		< 2 ms	
Calibration input		positive switching (24 V DC)	
Temperature ranges		working temperature -20 ... +60 $^\circ\text{C}$	storage temperature -20 ... +70 $^\circ\text{C}$
Protection class, test mark		3 according to IEC 801	CE
Type of protection		IP 65	according to DIN VDE 0470
Housing		transparent chromated aluminium	
Mounting		2 lateral fastening bores	

Accessories in the annex: cable extension, angle and straight coupling boxes

Your order: MSA510 - A - B - C - D

Magnetic strip MBA511

The base material is absolutely coded at defined distances and firmly joined to the steel carrier strip. For fixing, a special adhesive tape is premounted. An additional stainless steel cover strip is also included as standard.



Features:

- easy mounting by glueing
- resistant to humidity
- insensitive to dust, shavings ...

Attention! For correct use, the magnetic strip must be longer than the actual measuring distance. The additional length is 200 mm.

Feature	Ordering data	Technical data	Additional information
Length	... A	in m, max. 90 m, min. 0.5 m	incl. oversize length
Cover strip	AM A0 B	with without	standard
Measuring length		max. 20 480 mm	
Width		20 mm	
Accuracy class		±100 µm	at T ₀ = 20 °C
Mounting		glued, with double-side adhesive strip	
Working temperature		0 ... +60 °C	
Storage temperature		-20 ... +80 °C	

Your order:

MBA511 - -

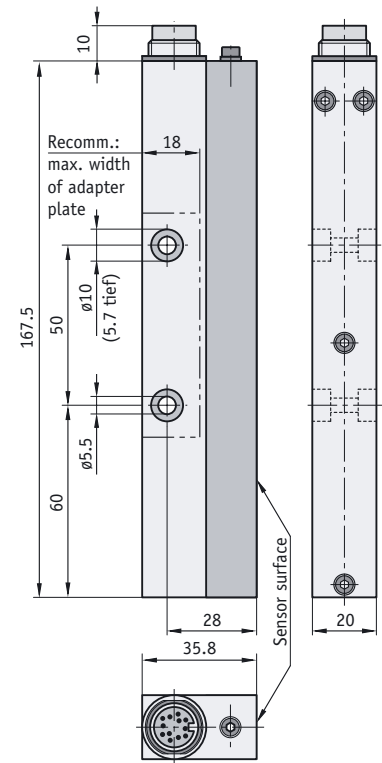
Magnetic sensor MSA511

The sensor gathers information from the coded MBA511 magnetic strip and forms an absolute, linear path measuring system for measuring lengths up to 20 m.



Features:

- compact design with integrated translation module
- SSI interface
- measuring length up to 20480 mm
- resolution 0.01 mm
- band/sensor gap max. 2.0 mm
- use with MBA511 magnetic strip



Feature	Ordering data	Technical data	Additional information
Output circuit	SSI A		standard according to RS422
Measuring length		max. 20480 mm	
Power supply		24 V DC $\pm 20\%$	
Power consumption		< 2.0 VA	
Inrush current		> 250 mA	
Interfaces		RS485 / Service interface	
		Sine / Cosine	1 V _{ss} (± 100 mV), offset 2.5 V DC (± 100 mV), 5 mm period length
Connection		plug connection, 12-pin	
Travel speed		max. 5 m/s	
Resolution		0.01 mm	
System accuracy		$\pm (0.1 + 0.03 \times L)$ mm, L in m	at T ₀ = 20 °C
Repeat accuracy		± 0.01 mm	
Strip/sensor gap		max. 2.0 mm	
Cycle time		< 2 ms	
Calibration input		available	
Temperature ranges		working temperature -20 ... +60 °C	storage temperature -20 ... +70 °C
Protection class, test mark		3 according to IEC 801	CE
Type of protection		IP 65	acc. to DIN VDE 0470 with suitable mating connector
Housing		transparent chromated aluminium	

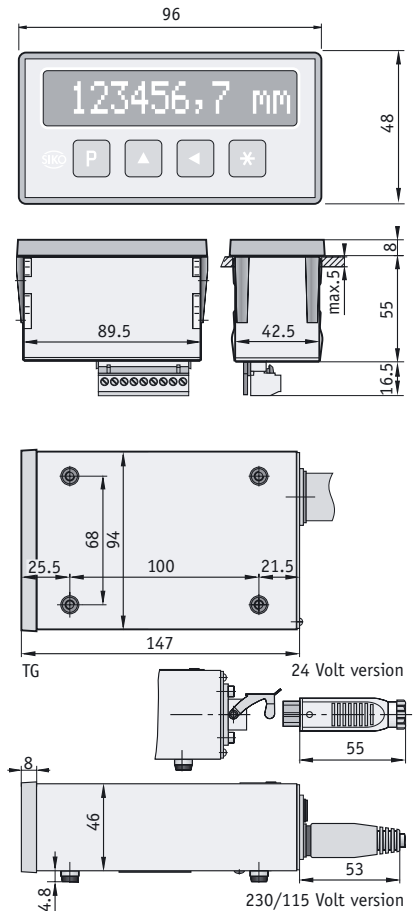
Accessories in the annex: cable extension, angle and straight coupling boxes

Your order:

MSA511 - **A**

Magnetic Display MA505

With this display the information of the absolute magnetic sensors MSA or LSA200 is processed for distance or position measurement. The display is comprehensively and individually programmable and optionally available with serial interface and integrated power supply unit.



Features:

- high-contrast LCD, 12-digit, dot matrix
- integrated translation module for absolute length measurement
- incremental/reset function
- calibration input
- direct reference/offset value input
- serial RS232/RS485 interface as an option

Feature	Ordering data	Technical data	Additional information
Design	EG	A panel-mount housing cutout 92 x 45 mm	standard , Noryl GFN 2 SE 1, as snap-in module
	TG	bench-top housing	aluminium profile, black anodized
Operating voltage	4	B 24 V DC $\pm 20\%$	standard
	1	230 V AC $\pm 10\%$	
	2	115 V AC $\pm 10\%$	
Calibration input	KM	C with connection	standard
	K0	without (only for bench-top housing)	
Interface/protocol	XX/XX	D without	standard
	S1/00	RS232 with standard protocol	others on request
Switching output	S0	E without	standard
	SM	with	only for XX/XX interface
Software	S	F	standard
Sensor connection	MSA	G	standard
	LSA200		
Magnetic sensor		MSA, LSA200 types	absolute
Display/display range		12-digit LCD dot matrix	-9 999 999 ... 9 999 999 + signs + units
Connection		sensor: Mini-DIN	supply : 9-pin screw-type terminal strip (EG)
Travel speed		max. 5 m/s (of magnetic sensor)	with 0.1 – 1.0 mm band/sensor gap
Resolution		in mm 0.01/0.1/1/10	in inch 0.001/0.01/0.1/1 programmable angle display
Repeat accuracy		0.01 mm	
System accuracy		$\pm (0.05 + 0.03 \times L)$ mm, L in m	at $T_U = 20^\circ\text{C}$
Protection class, test mark		3, according to IEC 801	CE
Signal input		reference switch	
Temperature range		working temperature: 0 ... $+50^\circ\text{C}$	storage temperature: $-20 \dots +80^\circ\text{C}$
Type of protection		IP 40 acc. to DIN 40050 for whole device	IP 60 acc. to DIN 40050 for control panel mounting
Humidity		95 % rH	condensation not permitted

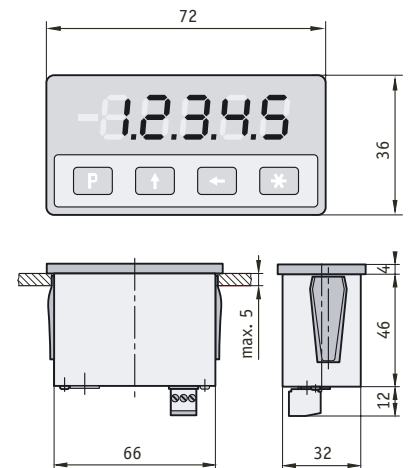
Your order:

MA505



Magnetic Display MA561

This very compact magnetic display processes the information of the connected, absolute measuring sensor for path and angle measurement. The display parameters are comprehensive and individually programmable.



Features:

- integrated translation module
- programmable parameters
- incremental function
- programmable last-value memory
- direct reference/offset value input
- calibration input

Feature	Ordering data	Technical data	Additional information
Sensor connection	MSA LSA200	for MSA sensor type for LSA200 sensor type	standard
Design		panel-mount housing, cutout 68 x 33 mm	red transparent plastic, snap-in module
Operating voltage		10 ... 30 V DC	
Power consumption		< 50 mA, @ 24 V DC	incl. sensor
Display/display range		5-digit LED, red, 10 mm	-99 999 ... (+)99 999
Connection		sensor: Mini-DIN	power supply: 3-pin terminal strip
Resolution		in mm 0.01/0.05/0.1/1	in inch 0.001/0.01/programmable angle display
Repeat accuracy		0.01 mm	
System accuracy		± (0.05 + 0.03 x L) mm, L in m	at T _u = 20 °C
Protection class, test mark		3 according to IEC 801	CE
Temperature range		working temperature: 0 ... +50 °C	storage temperature: -20 ... +85 °C
Type of protection		IP 40 acc. to DIN 40050 for whole unit	IP 60 acc. to DIN 40050 for control panel inclusion
Humidity		max. 95 % rH	condensation not permitted

Your order:

MA561

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A

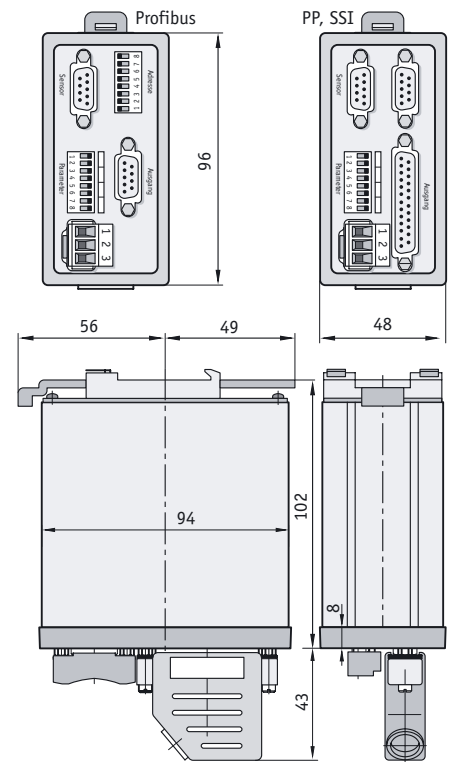
Translation Module AEA

This high-resolution translation module converts the measured values captured by the sensor into serial or parallel data (similar to data issued by an absolute rotary/angle encoder). This data can then be processed by any standard follower electronics (e.g., by a control unit).



Features:

- snap-in module for easy mounting
- all connections are pluggable
- SSI, PP parallel, Profibus
- parameter programming via DIP switches
- LED for status messages
- option: interface RS232 or RS485
- possibility for external bus connection (e.g., CAN, Interbus-S)



Feature	Ordering data	Technical data	Additional information
Output	PP	A parallel, standard	PP level: $U_L = 1\text{ V}$; $U_H = U_B = 20\text{ V}$ at 15 mA; I_{max} per channel 20 mA clock rate 62.5 kHz to 500 kHz encoder profile cl. 1
	SSI	synchronous serial interface	
	PB	Profibus	
Operating voltage	4	B 24 V DC $\pm 20\%$	standard
Power consumption		< 5 W	without output
Interfaces	XX/XX	C without	standard
	S1/00	RS232/standard	option
	S3/00	RS485/standard	option
Sensor connection	MSA	D for MSA sensor type	standard
	LSA200	for LSA200 sensor type	
Resolution		mm 0.01/0.1/1/10	inch 0.001/0.01/0.1/1
Repeat accuracy		0.01 mm	
System accuracy		$\pm (0.05 + 0.03 \times L)$ mm, L in m	at $T_U = 20\text{ }^\circ\text{C}$
Front plate		DIP switches	LED for status control
Outputs		PP parallel, SSI, Profibus	
SSI clock frequency		62.5 kHz ... 500 kHz	
SSI monoflop time		16 μs	
Internal cycle time		< 1 ms	
Parameters		programmable	via DIP-dip switches or interfaces
Electrical connection		D-SUB 9-pin and 25-pin	supply: terminal strip
Protection class, test mark		3 according to IEC 801	CE
Temperature ranges		working temperature 0 ... +60 $^\circ\text{C}$	storage temperature -20 ... +80 $^\circ\text{C}$
Type of protection		IP 20 according to DIN 40050	
Housing		aluminium	snap-in module for mounting on top-hat rails
Weight		approx. 350 g	

Your order:



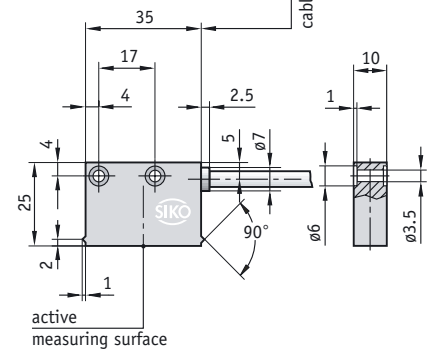
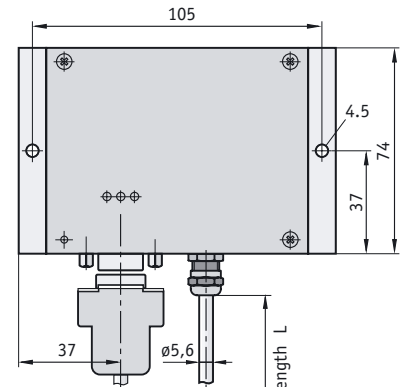
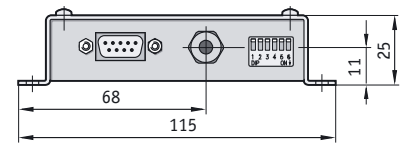
Translation Module ASA510

Sensor and translation module gather positional changes absolutely, even in the dead state. The system is particularly suited for very long distances with relatively rough distance tolerances.



Features:

- compact, absolutely measuring unit with hard-wired sensor
- accuracy class 0.05 mm, resolution 0.01 mm
- interfaces SSI or RS485
- scale MB500
- band/sensor gap max. 2.0 mm
- max. measuring distance ± 655 m
- maintenance-free backup battery



Feature	Ordering data	Technical data	Additional information
Sensor type	A	plastic	standard, red
Sensor cable length	1.0 ...	B in m max. 6 m in steps of 1.0 m	standard
Interfaces	SSI RS485	C 24 Bit, acc. to RS422 A SIKONETZ3 (bus-compatible)	switchable SSI/ RS485 service standard protocol
Operating voltage		24 V DC ± 20 %	with polarity protection
Power consumption		< 5 VA	
Resolution		10 μ m	
System accuracy		$\pm(0.025+0.01 \times L)$ mm [L in m]	at ambient temp. = 20 °C; [L = length pro per meter started]
Repeat accuracy		± 1 digit	
Sensor travel speed		max. 5 m/s	
Sensor/ Band gap		max. 2.0 mm	over whole measuring length
Type of connection		D-Sub 9-pin	
Lead cable length		max. 50 m	according to RS422 specification
Sensor cable sheath		PUR oil-resistant	
Translation module housing		sheet steel	electrolytically galvanized
Interference protection class		3	according to IEC 801
Temperature ranges		working temperature 0°C ... +60 °C	storage temperature -20°C ... +70 °C
Humidity of transl. electronics		max. 95 % rh	condensation not permitted
Humidity of sensor		max. 100 % rh	condensation permitted
Type of protection of transl. mod.		IP40	according to DIN VDE 0470
Sensor type of protection		IP67	according to DIN 40050
Test mark		CE	
Backup battery		service life 10 years	at ambient temp. = 20 °C; according to manufacturer specification
Weight		approx. 400 g	

Accessory

Item no. 79179	ferrite bush	for cable diameters 4,5 ... 6mm
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Your order: ASA510 - - -

Length Measuring System LSA200

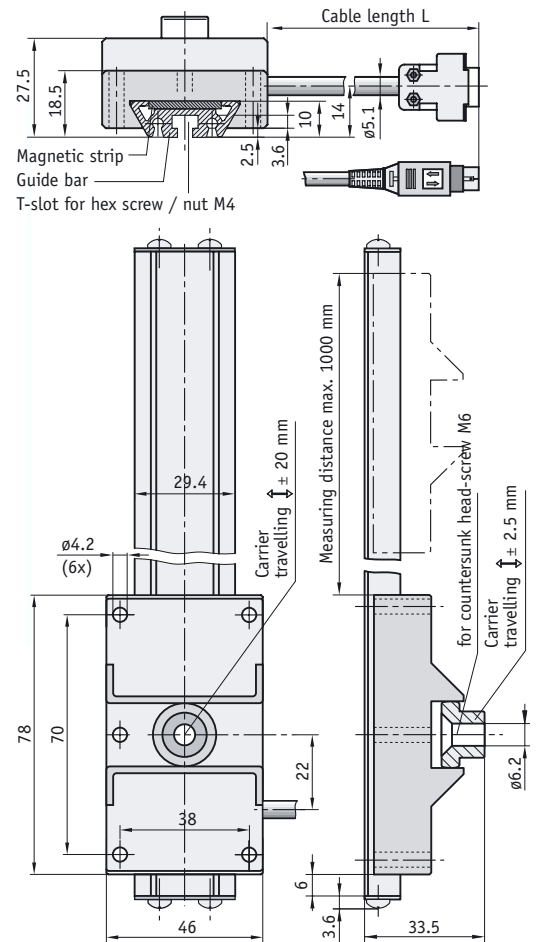
Rail system with integrated and guided sensor unit for absolute distance measuring.



Features:

- complete guide unit
- integrated MBA magnetic band
- absolute path measurement in combination with AEA or MA505/MA561
- installation by means of T-slot

Note: delivered length = measuring length + 90 mm



Feature	Ordering data	Technical data	Additional information
Cable outlet/cable length	E8/L E10/L	A Mini-DIN	D-SUB / cable length in meter 2.0 m standard, in meter, available up to max. 10 m in meter, available up to max. 10 m
Measuring length	L	B Measuring length up to max. 1000 mm	L in meter 0.50 m standard
Housing material		plastic	
Sensor cable		∅ approx. 5 mm, bending radius min. 50 mm	
Repeat accuracy		± 10 µm	
Protection class, test mark		3 according to IEC 801	CE
Temperature ranges		working temperature 0 ... +60 °C	storage temperature -20 ° ... +70 °C
Humidity		95 % rH	condensation permitted
Type of protection		IP 65	

Your order:

LSA200 - -

Accessory

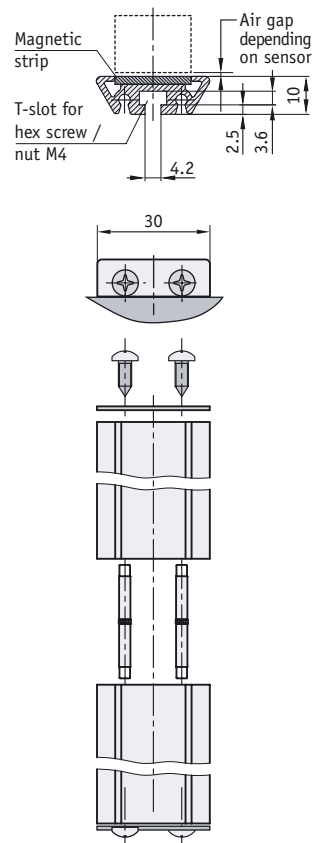
Profile Rail PSA

Robust and expandable mounting system for magnetic strips of 20 mm width. Consisting of profile rail, terminator and connecting pin; each corresponding to the overall length.



Features:

- easy mounting
- expandable by plug-in modules



Feature	Ordering data	Technical data	Additional information
Length	0.5 ...	profile rail: 0.5 m ±0.5 mm length in meter	standard
Material		aluminium	
Connecting parts		as part of delivery	

Your order:

PSA - A

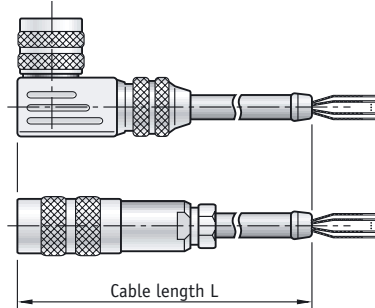
Accessory

Suitable for MSA510 + MSA511

Cable extensions in 7- and 12-core design with twisted screening braid. The mass-produced item is stripped and tinned on the cable ends.

Cable extension with
"W" angle box

Cable extension with
"GE" coupling box



Pin outs

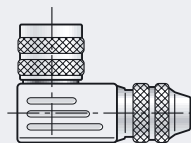
PIN	KV07-0	PIN	KV12-0
1	white	A	blue
2	brown	B	violet
3	green	C	green
4	yellow	D	red
5	grey	E	yellow
6	pink	F	pink
7	blue	G	red-blue
		H	white
		J	grey-pink
		K	grey
		L	black
		M	brown

Screen on housing

Feature	Ordering data		Technical data	Additional information
Suitable for sensor	MSA510	MSA511		pin-outs, see page 22
Cable extension	KV07-0	KV12-0	A	
Connection	W	W	B	angular mating connector
	GE	GE		straight mating connector
Cable length	1.0	1.0	C	length in meter standard 1.0 m
				1.0 m to 10.0 m in 0.1 m steps

Ordering information for mating connectors
without cable extension

only angle box:
MSA510: art.-no. 78088
MSA511: art.-no. 79666



only coupling box:
MSA510: art.-no. 76141
MSA511: art.-no. 76572

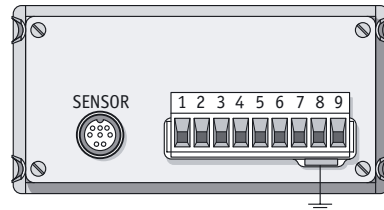


Your order: - - - -

Appendix/Pin Outs 1

MA505

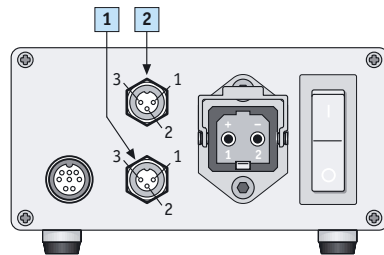
Panel-mount housing



PIN	Connection
1	CAL calibration input
2	UB = +12 V
3	GND
4	N.C.
5	RS232 RXD interface
6	RS232 TXD interface
7	PE
8	N (230/115 V AC), GND (24 V DC)
9	L (230/115 V AC), UB (24 V DC)

MA505

Bench-top housing
24 Volt

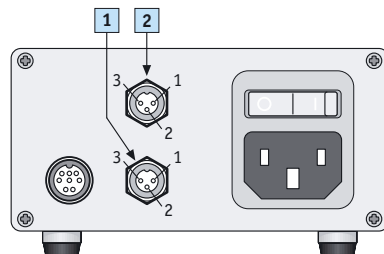


1	PIN	Calibration input connection
	1	CAL
	2	GND
	3	+UB

2	PIN	Interface connection
	1	GND
	2	RXD/DÜB
	3	TXD/DÜA

MA505

Bench-top housing
230 Volt

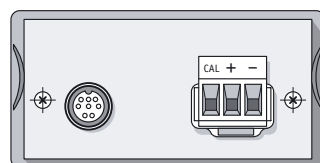


1	PIN	Calibration input connection
	1	CAL
	2	GND
	3	+UB

2	PIN	Interface connection
	1	GND
	2	RXD/DÜB
	3	TXD/DÜA

MA561

Panel-mount housing



Name	Connection
+	+UB = 10 ... 30 V DC
-	GND
CAL	Reset

ASA510

Panel-mount housing

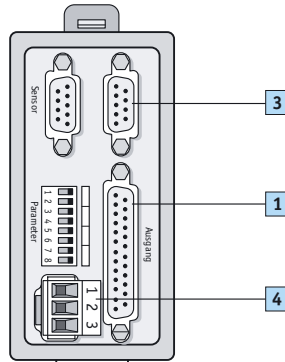


PIN	RS485	SSI
01	Supply U_{in}	Supply U_{in}
02	N.C.	Tackt+
03	DÜA	Daten+
04	Aktor U_{in}	Aktor U_{in}
05	GND	GND
06	Aktor 0 V	Aktor 0 V
07	N.C.	Tackt-
08	DÜB	Daten-
09	Aktor U_{out}	Aktor U_{out}

Appendix/Pin Outs 2

AEA

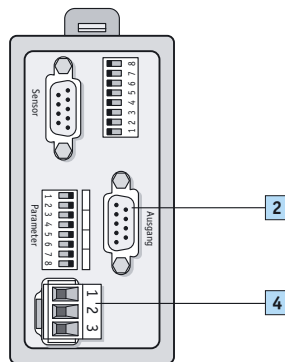
Parallel, SSI



1	PIN	Parallel	SSI
	1	D0	clock +
	2	D1	clock -
	3	D2	data +
	4	D3	data -
	5	D4	GND
	6	D5	N.C.
	7	D6	N.C.
	8	D7	N.C.
	9	D8	N.C.
	10	D9	N.C.
	11	D10	N.C.
	12	D11	N.C.
	13	D12	N.C.
	14	D13	N.C.
	15	D14	N.C.
	16	D15	N.C.
	17	D16	N.C.
	18	D17	N.C.
	19	D18	N.C.
	20	D19	N.C.
	21	N.C.	N.C.
	22	N.C.	N.C.
	23	N.C.	N.C.
	24	GND	N.C.
	25	GND	N.C.

AEA

Profibus output



2	PIN	Connection	PIN	Connection
	1	N.C.	6	2P5
	2	N.C.	7	N.C.
	3	B-LINE	8	A-LINE
	4	RTS	9	N.C.
	5	2M		

AEA

Interfaces

3	PIN	RS232	RS485
	1	N.C.	N.C.
	2	RXD	N.C.
	3	TXD	DÜA
	4	N.C.	N.C.
	5	GND	GND
	6	N.C.	N.C.
	7	N.C.	N.C.
	8	N.C.	DÜB
	9	N.C.	N.C.

AEA

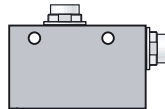
Terminal strip

4	PIN	Connection
	1	+ UB = 24 V DC
	2	GND
	3	PE

Appendix/Pin Outs 3

MSA510 + KV07-0

EX connection type
open connector



Output circuits, EX connection (only MSA510)

PIN	Typ SSI Signal	Typ RS485 Signal
1	zeroing/config.	n.c.
2	+UB	+UB
3	data+/DÚA	DÚA
4	data-/DÛB	DÛB
5	GND	GND
6	clock+	n.c.
7	clock-	n.c.

E1 connection type
flying leads



Output circuits, E1 connection (only MSA510)

Cable colour	Typ SSI Signal	Typ RS485 Signal
white	zeroing/config.	n.c.
brown	+UB	+UB
green	data+/DÚA	DÚA
yellow	data-/DÛB	DÛB
grey	GND	GND
pink	clock+	-
blue	clock-	-

E8 connection type
9-pin D-SUB connector



Output circuits, E8 connection (only MSA510)

PIN	Typ SSI Signal	Typ RS485 Signal
1	+UB	+UB
2	clock+	n.c.
3	data+/DÚA	DÚA
4	zeroing/config.	n.c.
5	GND	GND
6	n.c.	n.c.
7	clock-	n.c.
8	data-/DÛB	DÛB
9	n.c.	n.c.

MSA511 + KV12-0



Pin outs

MSA511 PIN	KV12-0 Core colour	Typ SSI Signal
A	blue	SSI data-
B	violet	SSI data+
C	green	SSI clock-
D	red	SSI clock+
E	yellow	+24 V DC
F	pink	sine
G	red-blue	RS485 DÚA
H	white	RS485 DÛB
I	grey-pink	GND
K	grey	n.c.
L	black	zeroing input
M	brown	cosine

**SIKO GmbH**

Weihermattenweg 2
79256 Buchenbach
Germany

Telephone

+49 7661 394-0

Telefax

+49 7661 394-388

eMail

info@siko.de

Internet

www.siko.de

Looking for a dealer
near to you?
You can find the complete
addresses of all SIKO product
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www.siko.de

SIKO Products Inc.

P.O. Box 279
Dexter, MI 48130
USA

Telephone

+1 734 42 63 476

Telefax

+1 734 42 63 453

eMail

sales@sikoproducts.com

Internet

www.sikoproducts.com

SIKO Ltd.

Unit 6, Dalton Lane
Codbeck Estate, Dalton
Thirsk, North Yorkshire
YO7 3HR
United Kingdom

Telephone

+44 1845 578845

Telefax

+44 1845 577781

eMail

sales@siko-uk.com

Internet

www.siko-uk.com

SIKO Italia S.r.l.

Via Borromeo, 4
I-20017 Rho MI
Italy

Telephone

+39 02 93906329

Telefax

+39 02 93469532

eMail

info@siko-italia.com

Internet

www.siko-italia.com

**SIKO Mess- und
Positioniersysteme
GmbH**

Landstrasse 35
8450 Andelfingen
Switzerland

Telephone

+41 52 317 46 41

Telefax

+41 52 317 46 42

eMail

info@siko-schweiz.ch

Internet

www.siko-schweiz.ch