03 | 2009

DisplayLine | Electronic Displays

6

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.

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 ...

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

6.1 | Electronic Displays

General information and areas of application		4
Function and application		6
Product matrix		7
Products	MA07/1	8
	MA50	10
	MA55	12
	MA10/4	14
	MA20	17
	MA23	20
	MA355	23

6.2 | Product index, Contact information 26

Displays and controls – functionality reduced to the basics

Excellent readability, ergonomic handling and smart use: SIKO's electronic displays are the instruments of choice wherever clear signals from measurement encoders are to be displayed in digital form and combined with logical functions.

All displays are equipped with scaleable intelligence. They allow monitoring of up to three measurement processes at the same time. Information is displayed on a single compact device – regardless of the type and combination of the sensors or encoders connected.

Measurement displays can generally be adapted quickly and effortlessly to various sensor interfaces by exchanging or adding modular components or simply by modifying the software.

In addition to standardized solutions, SIKO's individual solutions are a particularly practical way of fulfilling almost all requirements for customer-specific applications.

Measurement data is transferred to higher level control units via serial interfaces. The free programmability of the electronic displays enables direct input of specific parameters. As an option, some MA types offer signal functions via additional switching outputs. This enables complete single axis positioning control.

SIKO's electronic displays are multifunctional, electronic measurement solutions that allow effortless display of distance and angle information as well as rotation, speed or number of pieces. They also provide data for direct evaluation or further processing.

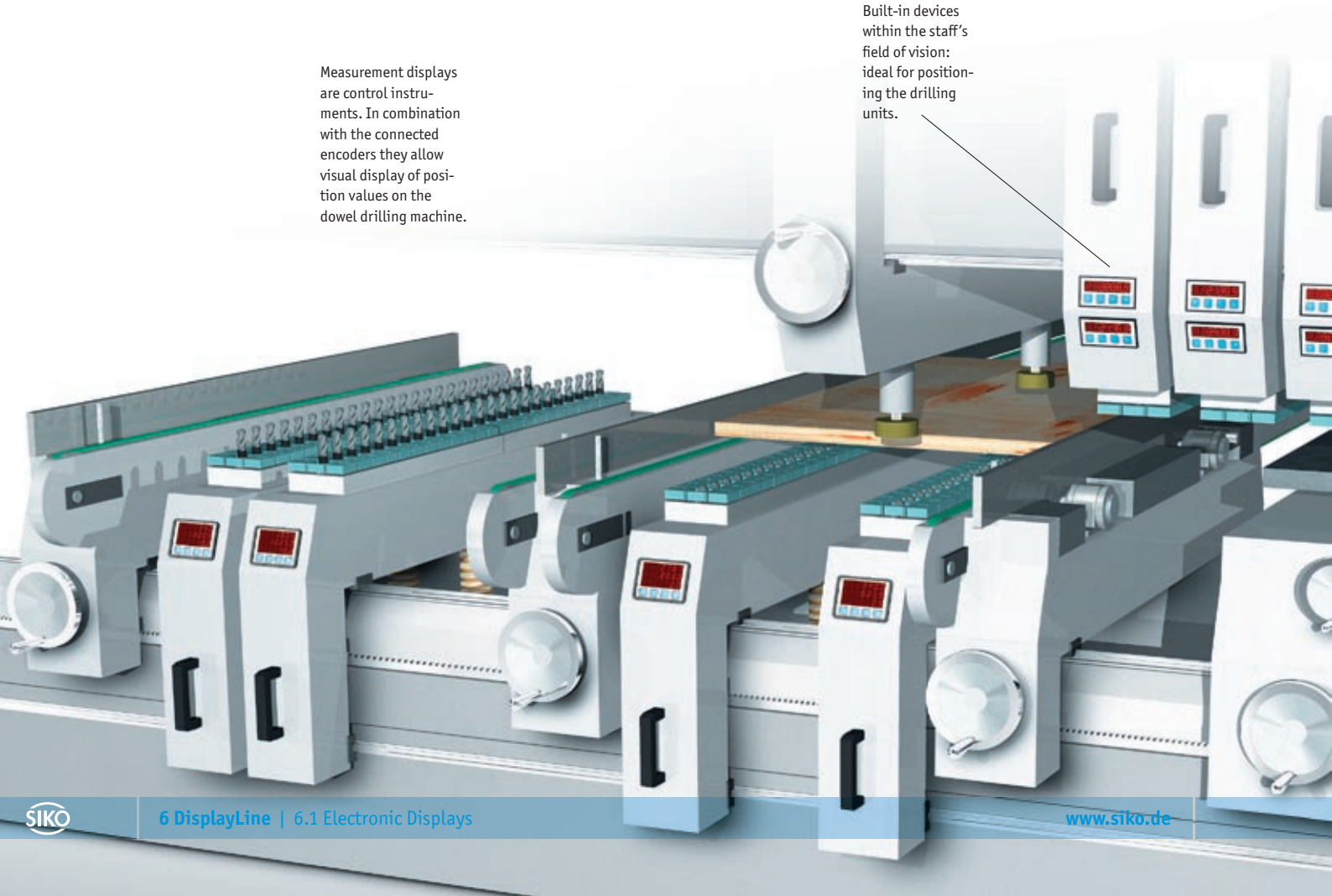
Clear digits and good readability: All front foils have recesses for sensitive, unambiguous key pressure

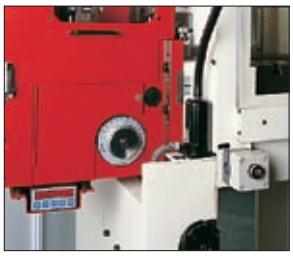
Benefits

- Incremental inputs: PP, OC, LD: PP, OC, LD, rotational speed, number of pieces
- Absolute inputs: SSI, analog
- Operating voltages: 24 V DC, 24 V AC, 110 V AC, 230 V AC
- Freely programmable parameters
- Possibility of external calibration and referencing
- Switching outputs
- RS232/RS485 interfaces

Measurement displays are control instruments. In combination with the connected encoders they allow visual display of position values on the dowel drilling machine.

Built-in devices within the staff's field of vision: ideal for positioning the drilling units.





1

Application areas

SIKO's multifunctional electronic displays are compact units with a geometry that enables smooth integration in any control console. Clear, high-contrast displays guarantee good readability even in poor lighting conditions or soiled work environments. Standardized designs enable simple, direct integration, e.g., in the stop of a circular saw. Besides conventional numerical values with algebraic signs, alphanumerical displays can also display text information.

Free programmability ensures optimum adaptation to changes in measuring or switching operations at processing centers.

Ready-for-use panel mount and bench top housing are a practical alternative to complex constructional changes when existing production facilities have to be upgraded to meet higher requirements.

2

3

Bildnachweise der Firmen: Panhans, Mabu, Marcovil, Boschert, Kemmerich

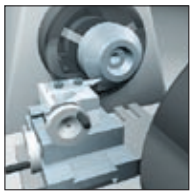
4

5

[1] Practical housing for mounting is available with almost all electronic displays.
[2] Display of position values on a sheet metal bending machine. [3] Control tasks are freely programmable on this punching machine: Input is visually guided by MAs and centrally performed via a mobile control console. [4] High functionality combined with small installation depth: the control instrument on a circular saw. [5] Besides calculating offset values, this intelligent stop also provides the incremental measurement function.

Application	Examples of use	Benefits

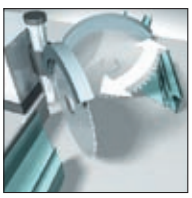
Paths and lengths

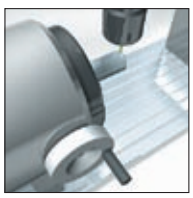


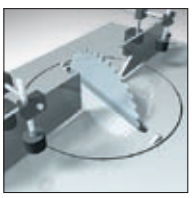
E.g., stop adjustment, length measurement ...

- Freely scaleable representation of measured values
- Various sensor types
- Incremental and absolute

Angle



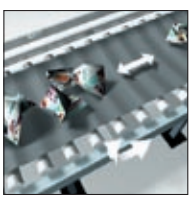


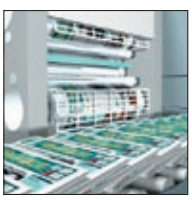


E.g., with miter saws, with a rotary encoder on the rotary table ...

- High-resolution angle measurement
- Freely scaleable
- Various sensor types

Speed





E.g., on the conveyor belt, for direct speed measurement ...

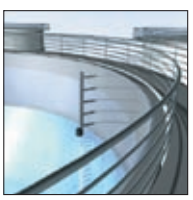
- Scaleable linear and rotating speed
- Precise evaluation of speed

Number of pieces

E.g., with light barrier, pulsers or proximity switches ...

- Can be combined with various sensors for number of pieces
- Easy reset function

Analog measurement



E.g., of resistance, current or voltage. Absolute measurement is carried out by means of wire-actuated encoders and analog rotary encoders (geared potentiometers)

- High-resolution analog value interpretation
- Suitable for different analog signals

Electronic Displays

	MA07/1	MA50	MA55	MA10/4	MA20	MA23	MA355
Page	8	10	12	14	17	20	23
Display							
1-line	LED	LED	LED	LCD			
2-line					LCD		
3-line						LED	LED
Operating voltage							
230 V AC				•			
115 V AC				•			
24 V AC				•			
24 V DC	•	•	•	•	•	•	•
Type of measurement							
Length and angle measurement	•	•	•	•	•	•	•
Speed	•			•			
Number of pieces	•			•			
Additional functions							
Limit monitoring		•		•	I/O card		
Reset key		•	•	•	•	•	•
I/O card					•		
Interface RS232/ RS485 (option)				•	•	•	
Inputs							
Incremental	•		•	•	•	•	•
Absolute (SSI)				•	•	•	
Analog (current, voltage, resistance)		•				•	

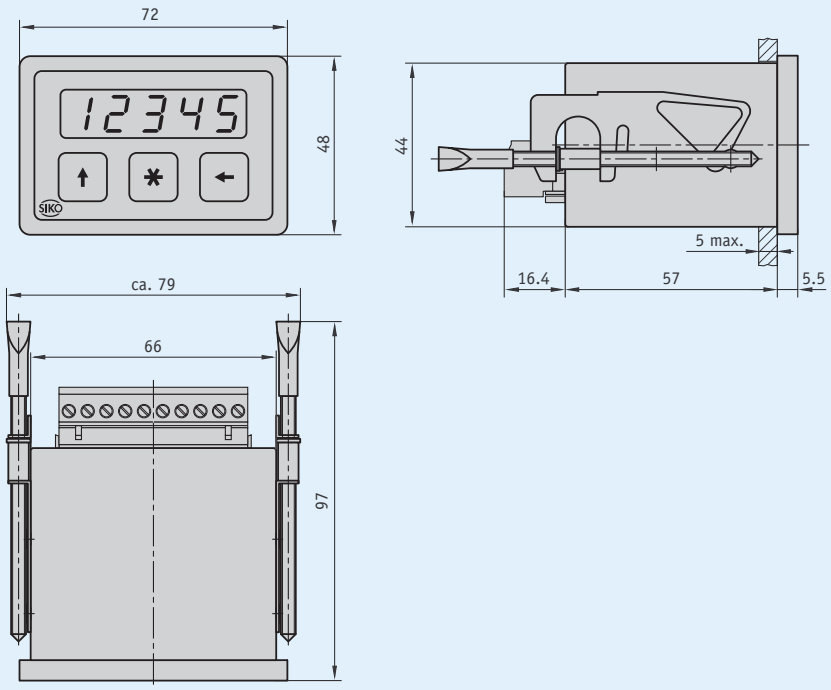
6.1

Electronic Display MA07/1

Incremental, length, angle, rotational speed or number of pieces measurement

Profile

- LED display (1 line of 5 digits)
- Inputs for incremental sensors, length and angle measurement, rotational speed or number of pieces
- Free programming via front keyboard
- Incremental measurement function (operating mode I), actual value memory (operating modes I and S)
- With reference connection
- Programming enabled via external input (keyswitch)
- Compact design



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... +50 °C	
Storage temperature	-20 ... +85 °C	
Condensation	inadmissible	
Protection category	IP40 whole device IP60 front with switchboard mounting	DIN 40050
Connections	plug strip	
Keyboard	membrane keys with pressure point	
Housing	plastic, with clamping clips	switchboard cutout 45 x 68 mm, DIN 43700
Weight	approx. 0.15 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	12 ... 28 V DC	
Current consumption	100 mA	with 24 V, without encoder
Display	5-digit, LED, 10 mm, red	
Display range	-99 999 ... +99 999	
Encoder input	PP, OC, OE, TTL5, TTL24	
Encoder input frequency	25 kHz	with referencing max. 1 kHz
Encoder supply	24 V DC (200 mA) 5 V DC (100 mA)	
Counter capacity	223 increments	
Pulse analysis	4-fold	
Interference protection class	EN61000-6-2, EN6100-6-4	

Pin assignment

Incremental	Speed	Number of pieces	PIN
+ Ub encoder supply	+ Ub encoder supply	+ Ub encoder supply	1
A-signal	A-signal	A-signal	2
B-signal	N.C.	N.C.	3
Index signal I/O	N.C.	N.C.	4
GND, screen encoder supply	GND, screen encoder supply	GND, screen encoder supply	5
RFS	N.C.	Reset	6
GND	GND	GND	7
configuration	configuration	configuration	8
L (+ Ub)	L (+ Ub)	L (+ Ub)	9
N	N	N	10

Order

Feature	Order data		Specifications	Additional information
Operating mode	I	A	incremental	
	D		speed measurement	
	S		number of pieces measurement	
Encoder input	PP	B	push-pull	
	OC		open collector	
	OE		open emitter 24 V	
	TTL/5		5 V	only operating mode I
	TTL/24		24 V	only operating mode I

Order code

MA07/1 - [ ] - [ ]
A B

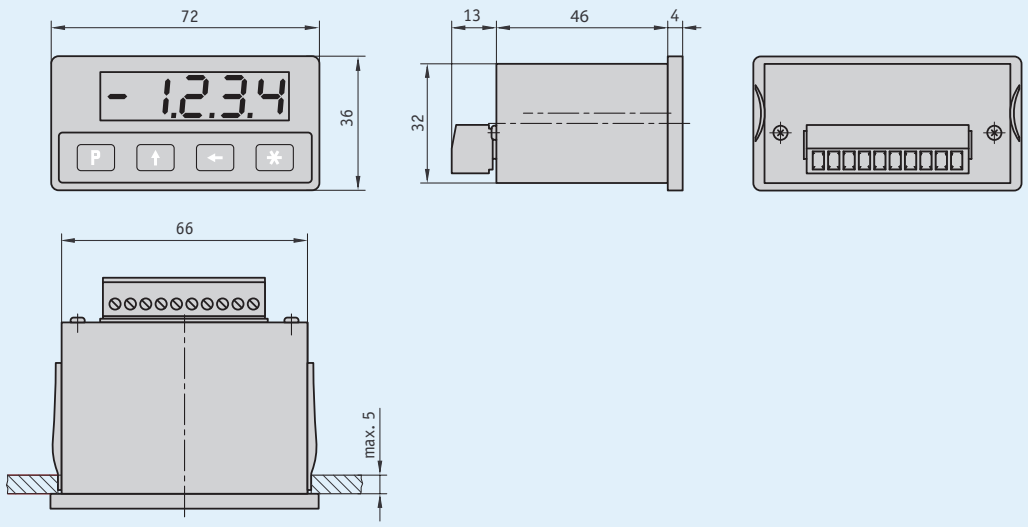
Scope of delivery: *MA07/1, User information, Mating connectors*

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

Electronic Display MA50
Analog, length and angle measurement

Profile

- LED display (1 line of 4 digits)
- Voltage, current and resistor inputs for length and angle measurement
- Free programming via front keyboard
- Non-volatile parameter storage (EEPROM)
- 2 switching outputs (limit-dependent, programmable)
- Compact design



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... 50 °C	
Storage temperature	-20 ... 80 °C	
Temperature drift	<1 %	
Humidity	max. 95 % rF	
Condensation	inadmissible	
Protection category	IP40 for whole device IP60 front with switchboard mounting	DIN 40050
Connection	10-pin connector strip	
Keyboard	membrane keys with pressure point	
Housing	plastic	switchboard cutout 33 x 68 mm, DIN 43700
Weight	approx. 0.2 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	10 ... 30 V DC	
Current consumption	~80 mA	with 24 V, without encoder
Switching outputs	≤30 V/100 mA	
Display	4-digit, LED, red (7-segment)	
Display range	-9 999 ... +9 999	
Signal inputs	0 ... 10 V DC	voltage
	0 ... 20 mA or 4 ... 20 mA	current
	0 ... 10 kΩ	resistance
Resolution	max. 10 bit	
Accuracy	max. 0.1 %	
Interference protection class	EN61000-6-2, EN6100-6-4	

Pin assignment

Resistance measurement	Voltage measurement	Current measurement	PIN
N.C.	N.C.	I+ (0 ... 20 mA, 4 ... 20 mA)	1
Potentiometer E (ultimate position)	N.C.	N.C.	2
Potentiometer S (wiper)	N.C.	N.C.	3
N.C.	U+ (0 ... 10 V)	N.C.	4
N.C.	N.C.	I- (0 ... 20 mA, 4 ... 20 mA)	5
Potentiometer A (initial position)	U-	N.C.	6
Switching output O (upper limit)	switching output O (upper limit)	switching output O (upper limit)	7
Switching output U (lower limit)	switching output U (lower limit)	switching output U (lower limit)	8
+ Ub operating voltage	+ Ub operating voltage	+ Ub operating voltage	9
0 V GND	0 V GND	0 V GND	10

Order

- **Order code**

MA50

Scope of delivery: *MA50, User information, Mating connectors*

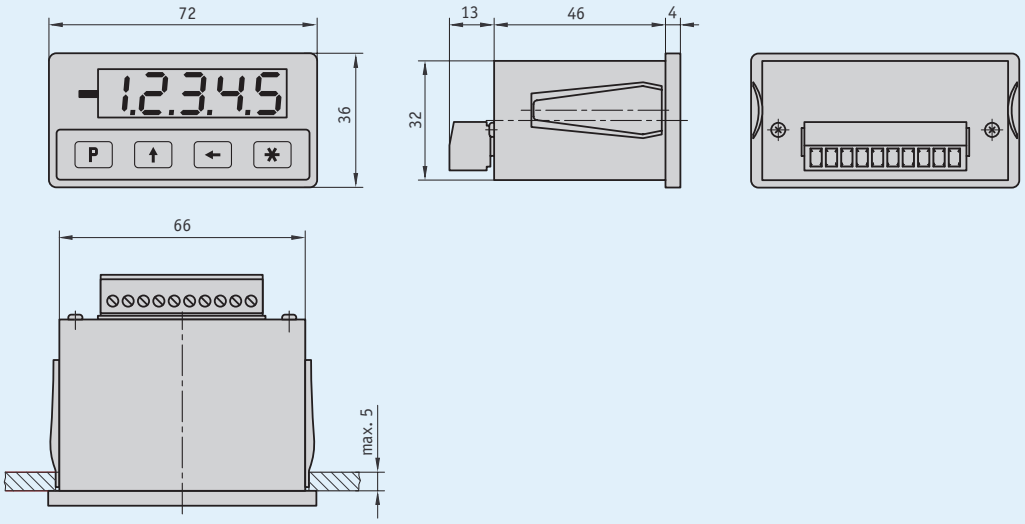
Additional information:
General information and areas of application *Page 4 cont.*

Electronic Display MA55
Incremental, length and angle measurement

Profile

- LED display (1 line of 5 digits)
- Input for incremental encoder recognition of the counting direction for length and angle measurement
- Free programming via front keyboard
- Non-volatile parameter storage (EEPROM)
- With reference connection
- Integrated quadruple evaluation of counting pulses
- Compact design

6.1



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... 50 °C	
Storage temperature	-20 ... 80 °C	
Humidity	max. 95 % rF	
Condensation	inadmissible	
Protection category	IP40 whole device IP60 front-side with switchboard mounting	DIN 40050
Connection	10-pin connector strip	
Keyboard	membrane keys with pressure point	
Housing	plastic, with clamping clips	switchboard cutout 33 x 68 mm, DIN 43700
Weight	approx. 0.2 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	24 V DC ±20 %	
Current consumption	~60 mA	with 24 V, without encoder
Display	5-digit, LED, red (7-segment)	
Display range	-99 999 ... +99 999	
Encoder input	square-wave signals 90° phase-shifted PP (push-pull), OE (open emitter)	with reference signal
Encoder input frequency	max. 25 kHz	
Encoder supply	24 V DC (200 mA)	
Pulse analysis	4-fold	
Interference protection class	EN61000-6-2, EN6100-6-4	

Pin assignment

PP, OE	PIN
+ Ub encoder supply	1
A-signal	2
B-signal	3
Index signal I/O	4
GND, screen encoder supply	5
RFS	6
GND	7
PE	8
0 V GND	9
+24 V operating voltage	10

Order

- **Order code**

MA55

Scope of delivery: *MA55, User information, Mating connectors*

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

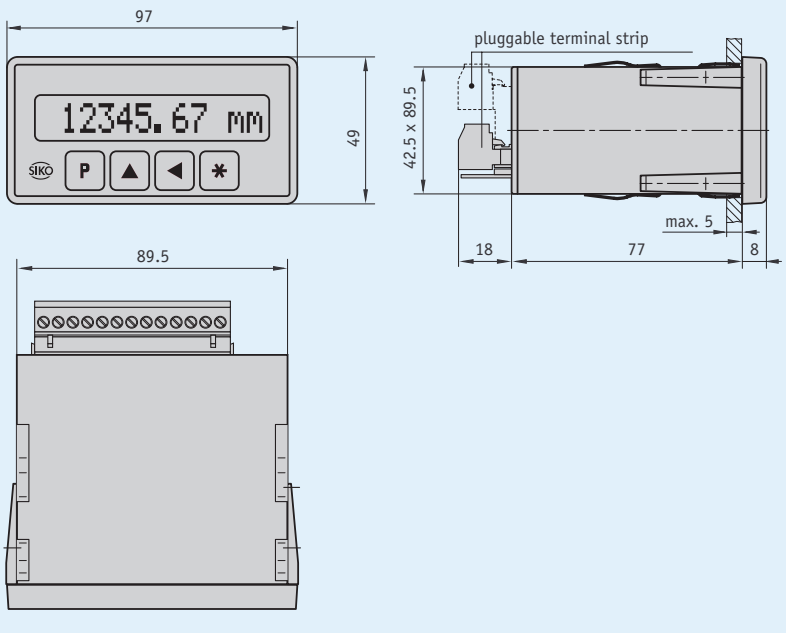
Electronic Display MA10/4

Incremental or absolute, length, angle, speed or number of pieces measurement

Profile

- High contrast LCD readout (1 line of 12 digits)
- Display of units
- Inputs for incremental or absolute encoder (SSI), length and angle measurement, speed or number of pieces
- Free programming via front keyboard
- With reference connection
- Optional: RS232 or RS485 interface
- Optional: Switching outputs

6.1



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... +50 °C	
Storage temperature	-20 ... +85 °C	
Condensation	inadmissible	
Protection category	IP40 for whole device IP60 front with switchboard mounting	DIN 40050
Connection	13-pin connector strips	
Keyboard	membrane keys with pressure point	
Housing	plastic	switchboard cutout 45 x 92 mm, DIN 43700
Weight	0.4 kg 0.25 kg	with 230 V and 110 V with 24 V

Electrical data

Feature	Technical data	Additional information
Voltage supply	24 V DC ±20 % 24 V AC ±10 % 115 V AC ±10 % 230 V AC ±10 %	
Current consumption	120 mA	with 24 V, without encoder
Switching outputs	≤30 V/100 mA	2 freely programmable outputs
Display	12-digit LCD dot matrix	
Display range	-9 999 999 ... +9 999 999	additionally sign and unit of measurement
Encoder input	PP, OC, OP, LD5, LD24, SSI/5, SSI/24 DREH/PP, DREH/OC, S/PP, S/OC	length and angle measurement speed measurement number of pieces measurement
Encoder input frequency	max. 500 kHz	
Encoder supply	24 V DC (200 mA) 5 V DC (200 mA)	
Counter capacity	$\pm 2^{23}$ increments	
Pulse analysis	quadruple	incremental encoder
Interference protection class	EN61000-6-2, EN6100-6-4	

6.1

Pin assignment

Incremental PP, OC, OP, LD5, LD24	Speed/number of pieces speed/PP, speed/OC, S/PP, S/OC	Absolute SSI/5, SSI/24	PIN
+Ub encoder supply	+Ub encoder supply	+Ub encoder supply	1
A-signal	A-signal	clock+	2
B-signal		data+	3
Index signal			4
GND, screen encoder supply	GND, screen encoder supply	GND, screen encoder supply	5
24 V DC out	24 V DC out	24 V DC out	6
RFS	RFS	CAL	7
N.C.	N.C.	N.C.	8
GND	GND	GND	9
N.C.	N.C.	N.C.	10
PE	PE	PE	11
0 V GND	0 V GND	0 V GND	12
+ Ub operating voltage	+ Ub operating voltage	+ Ub operating voltage	13
Encoder supply	encoder supply	encoder supply	14
/A-signal (LD, OP)		clock-	15
/B-signal (LD, OP)	/index signal (LD, OP)	data-	16
/Index signal (LD, OP)			17
GND	GND	GND	18
N.C.	N.C.	N.C.	19
GND	GND	GND	20
N.C.	N.C.	N.C.	21
DÜA/TXD/A1	DÜA/TXD/A2	DÜA/TXD/A1	22
DÜB/RXD/A2	DÜB/RXD/A3	DÜB/RXD/A2	23
N.C.	N.C.	N.C.	24
N.C.	N.C.	N.C.	25
N.C.	N.C.	N.C.	26

Order

Feature	Order data		Specifications	Additional information
Operating voltage	1	A	230 V AC ±10 %	
	2		115 V AC ±10 %	
	3		24 V AC ±10 %	
	4		24 V DC ±20 %	
Encoder input	PP	B	push-pull	
	OC		open collector	
	OP		PP invertiert	
	LD/5		line driver/5 V DC encoder supply	
	LD/24		line driver/24 V DC encoder supply	
	SSI/5		SSI/5 V DC encoder supply	
	SSI/24		SSI/24 V DC encoder supply	
	DREH/PP		speed/24 V DC encoder supply	push-pull
	DREH/OC		speed/24 V DC encoder supply	open collector
	S/PP		number of pieces/24 V DC encoder supply	push-pull
	S/OC		number of pieces/24 V DC encoder supply	open collector
Counting frequency (kHz)	25	C		
	250			
	500			
Switching output	SO	D	without	
	SM		with	
Interface/protocol	XX/XX	E	without	
	S1/00		RS232/standard	
	S3/00		RS485/standard	
Front foil	BS	F	blue	
	BN		blue neutral	without company logo
Software	S	G	length measurement	
	SW02		angle measurement, 0–360°	

Order code

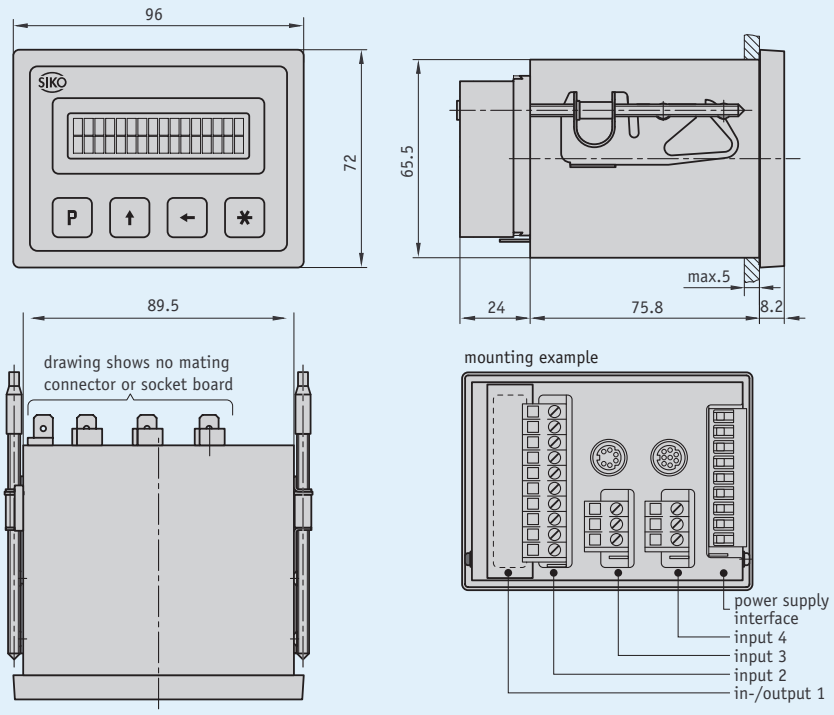
MA10/4 – EG – [A] – [B] – [C] – [D] – RM – [E] – [F] – [G]

Scope of delivery: *MA10/4, User information, Mating connectors*

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

Profile

- LCD indicator (2 lines of 16 digits)
- 4 slots for function and input cards (rotary encoders, magnetic sensors, length and angle measurement)
- Easy-to-use, menu-guided user interface
- Various measurement systems can be combined
- Output card for upper and lower limits
- Optional: RS232 or RS485 interface



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... +50 °C	
Storage temperature	-20 ... +85 °C	
Condensation	inadmissible	
Protection category	IP40 for whole device IP60 front with switchboard mounting	DIN 40050
Connection	connector strip DIN mini-connector for magnetic sensors	
Keyboard	membrane keys with pressure point	
Housing	plastic	switchboard cutout 68 x 92 mm, DIN 43700
Weight	approx. 0.35 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	24 V DC ±20 %	
Current consumption	100 mA	with 24 V, without encoder
Switching outputs	option via I/O card	
Display	LED text display, 2 lines of 16 characters	5 mm high, 5 x 7 matrix
Function card I/O	4 transistor outputs 30 V DC (100 mA) 4 optocoupler inputs	galvanically isolated, e.g., for upper and lower limits 15 ... 30 V DC
Input card incremental encoder input frequency encoder supply	PP, OC, LD5, LD24 25 kHz 5 V DC (200 mA), 24 V DC (200 mA)	
Input card absolute bit width encoder supply	SSI max. 25 bit 24 V DC (200 mA)	
Input card MLI	SIKO magnetic sensor, type MS500	
Input card MLA	SIKO magnetic sensor, type MSA	
Encoder input frequency	25 kHz	
Data and actual value memory	EEPROM min. 25 years	
Pulse analysis	quadruple	
Interference protection class	EN61000-6-2, EN6100-6-4	

6.1

Pin assignment

Power pack + interface	RS232	RS485	PIN
+24 V operating voltage	+24 V operating voltage	+24 V operating voltage	1
+24 V operating voltage	+24 V operating voltage	+24 V operating voltage	2
0 V GND	0 V GND	0 V GND	3
0 V GND	0 V GND	0 V GND	4
	TXD	DÜA	5
	RXD	DÜB	6
	GND interface	GND interface	7
			8
			9

PP, OC	LD5, LD	NPN	PNP	SSI	PIN
+ Ub encoder supply	+ Ub encoder supply	IN 1	IN 1	+ Ub encoder supply	1
A-signal	A-signal	IN 2	IN 2	Clock+	2
N.C.	/A-signal	IN 3	IN 3	Clock-	3
B-signal	B-signal	IN 4	IN 4	Data+	4
N.C.	/B-signal	GND	GND	Data-	5
Index signal	Index signal	Out 1	Out 1	GND, screen enc. supply	6
N.C.	/Index signal	Out 2	Out 2	+24 V	7
GND	GND	Out 3	Out 3	CAL	8
RFS	RFS	Out 4	Out 4	GND	9
+24 V	+24 V	GND	U in	SE	10

Order

Feature	Order data		Specifications	Additional information
Input/output 1	X	A	without	
	I/O, NPN		switching to ground	
	I/O, PNP		plus switching	
	PP/OC		push-pull/open collector 24 V DC	
	LD/5		RS422/5 V	
	LD/24		RS422/24 V	
	SSI		Synchronous Serial Interface	
Input 2	X	B	without	
	PP/OC		push-pull/open collector 24 V DC	
	LD/5		RS422/5 V	
	LD/24		RS422/24 V	
	SSI		Synchronous Serial Interface	
	MLI		magnetic measurement system incremental	
	MLA		magnetic measurement system absolute	
	BUS		BUS card	
Input 3	...	C	see Input 2	
Input 4	...	D	see Input 2	
Interface/protocol	X	E	without	
	S1/00		RS232/standard	
	S3/00		RS485/standard	
	S3/07		RS485/SIKONETZ-4	

Order code

MA20 – EG – [A] – [B] – [C] – [D] – [E]

Scope of delivery: *MA20, User information, Mating connectors*

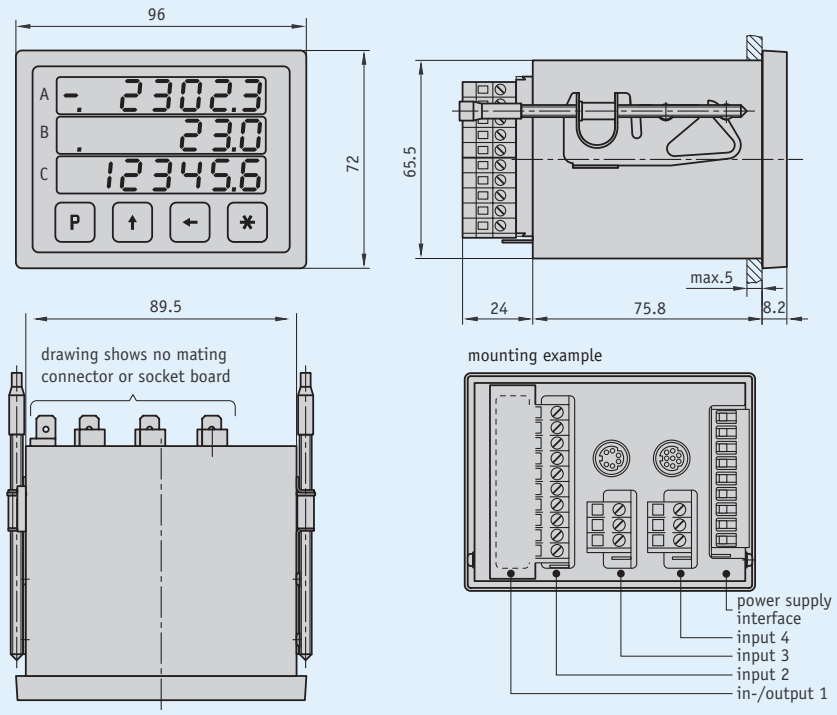
Additional information:
General information and areas of application *Page 4 cont.*

Three-Channel Display MA23
Incremental and absolute, length and angle measurement

Profile

- LED readout for display of 3 measured values (3 lines of 7 digits)
- 3 slots for input cards (rotary encoders, magnetic sensors, length and angle measurement)
- Easy-to-use, menu-guided user interface
- Various measurement systems can be combined, connection of up to three measurement systems possible
- Optional: RS232 or RS485 interface

6.1



Mechanical data

Feature	Technical data	Additional information
Operating temperature	0 ... +50 °C	
Storage temperature	-20 ... +85 °C	
Condensation	inadmissible	
Protection category	IP40 for whole device IP60 front with switchboard mounting	DIN 40050
Connection	connector strip DIN mini-connector for magnetic sensors	
Keyboard	membrane keys with pressure point	
Housing	plastic	switchboard cutout 68 x 92 mm, DIN 43700
Weight	approx. 0.35 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	24 V DC ±20 %	
Current consumption	~150 mA	with 24 V, without encoder
Display	7-digit, 7-segment LED, red, 10 mm, 3-line	
Display range	-999 999 ... +999 999	e.g., for upper and lower limits
Input card incremental	PP/OC, LD5, LD24	
encoder input frequency	25 kHz	
encoder supply	5 V DC (200 mA), 24 V DC (200 mA)	
Input card absolute	SSI	
bit width	max. 25 bit	
encoder supply	24 V DC (200 mA)	
Input card MLI	SIKO magnetic sensor, type MS500	
Input card MLA	SIKO magnetic sensor, type MSA	
Signal inputs	0 ... 10 V DC 0 ... 20 mA or 4 ... 20 mA 0 ... 10 kΩ	voltage current resistance
Encoder input frequency	25 kHz	
Data and actual value memory	EEPROM min. 25 years	
Pulse analysis	quadruple	
Interference protection class	EN61000-6-2, EN6100-6-4	

Pin assignment

Power pack + interface	RS232	RS485	PIN
+24 V operating voltage	+24 V operating voltage	+24 V operating voltage	1
+24 V operating voltage	+24 V operating voltage	+24 V operating voltage	2
0 V GND	0 V GND	0 V GND	3
0 V GND	0 V GND	0 V GND	4
N.C.	TXD	DÜA	5
N.C.	RXD	DÜB	6
N.C.	GND interface	GND interface	7
N.C.	N.C.	N.C.	8
N.C.	N.C.	N.C.	9

PP, OC	LD5, LD	NPN	PNP	SSI	PIN
+ Ub encoder supply	+ Ub encoder supply	IN 1	IN 1	+ Ub encoder supply	1
A-signal	A-signal	IN 2	IN 2	Clock+	2
	/A-signal	IN 3	IN 3	Clock-	3
B-signal	B-signal	IN 4	IN 4	Data+	4
	/B-signal	GND	GND	Data-	5
Index signal	index signal	Out 1	Out 1	GND, screen encod. supply	6
	/index signal	Out 2	Out 2	+24 V	7
GND	GND	Out 3	Out 3	CAL	8
RFS	RFS	Out 4	Out 4	GND	9
+24 V	+24 V	GND	U in	SE	10

Order

Feature	Order data		Specifications	Additional information
Input 2	X	A	without	
	PP/OC		push-pull/open collector 24 V DC	
	LD/5		RS422/5 V	
	LD/24		RS422/24 V	
	SSI		Synchronous Serial Interface	
	MLI		magnetic measurement system incremental	
	MLA		magnetic measurement system absolute	
	URI		analog	
Input 3	...	B	see Input 2	
Input 4	...	C	see Input 2	
Interface/protocol	X	D	without	
	S1/00		RS232/standard	
	S3/00		RS485/standard	
	S3/07		RS485/SIKONETZ-4	

6.1

Order code

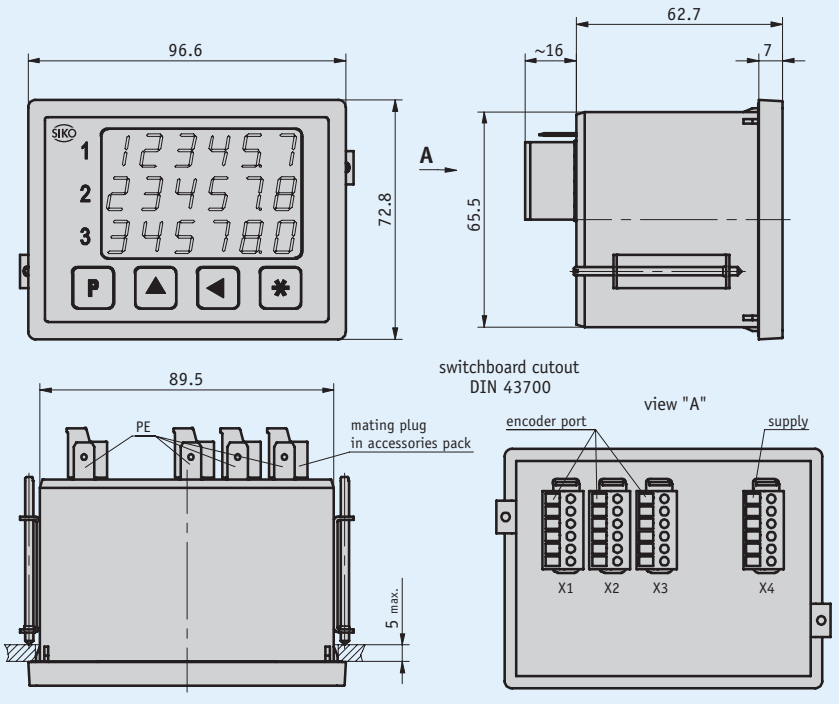
MA23 – EG – [A] – X – [B] – [C] – [D]

Scope of delivery: *MA23, User information, Mating connectors*

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

Profile

- LED readout for display of 3 measured values (3 lines of 6 digits)
- 3 inputs for incremental sensors, individually programmable, length and angle measurement
- Free programming via front keyboard (scaling factors, offset, reset value, etc.)



Mechanical data

Feature	Technical data	Additional information
Operating temperature	-10 ... +70 °C	
Storage temperature	-30 ... +80 °C	
Humidity	max. 95 % rF	
Condensation	inadmissible	
Protection category	IP40 for whole device IP60 front with switchboard mounting	DIN 40050
Connection	connector strip	
Keyboard	membrane keys with pressure point	
Housing	plastic	
Weight	approx. 0.25 kg	

Electrical data

Feature	Technical data	Additional information
Voltage supply	24 V DC ±10 %	reverse-polarity protection
Current consumption	<100 mA	with 24 V, without encoder
Display	3 x 7-segment LED, 6-digit, 10 mm	
Display range	each -99 999 ... +99 999	
Encoder input	PP (push-pull)	
Encoder input frequency	<100 kHz	
Encoder supply	max. 150 mA/channel	
Pulse analysis	4-fold	
Interference protection class	EN61000-6-2, EN6100-6-4	

Pin assignment

Encoder channel 1-3 (X1-X3) pin assignment

Assignment	No.
RFS	1
Index	2
B	3
A	4
+24VDC	5
GND	6

Supply (X4)

Assignment	No.
N.C.	1
N.C.	2
N.C.	3
N.C.	4
+24VDC	5
GND	6

Order

Order code

MA355 - XX/XX - SF - S

Scope of delivery: *MA355, User information, Mating connectors*

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

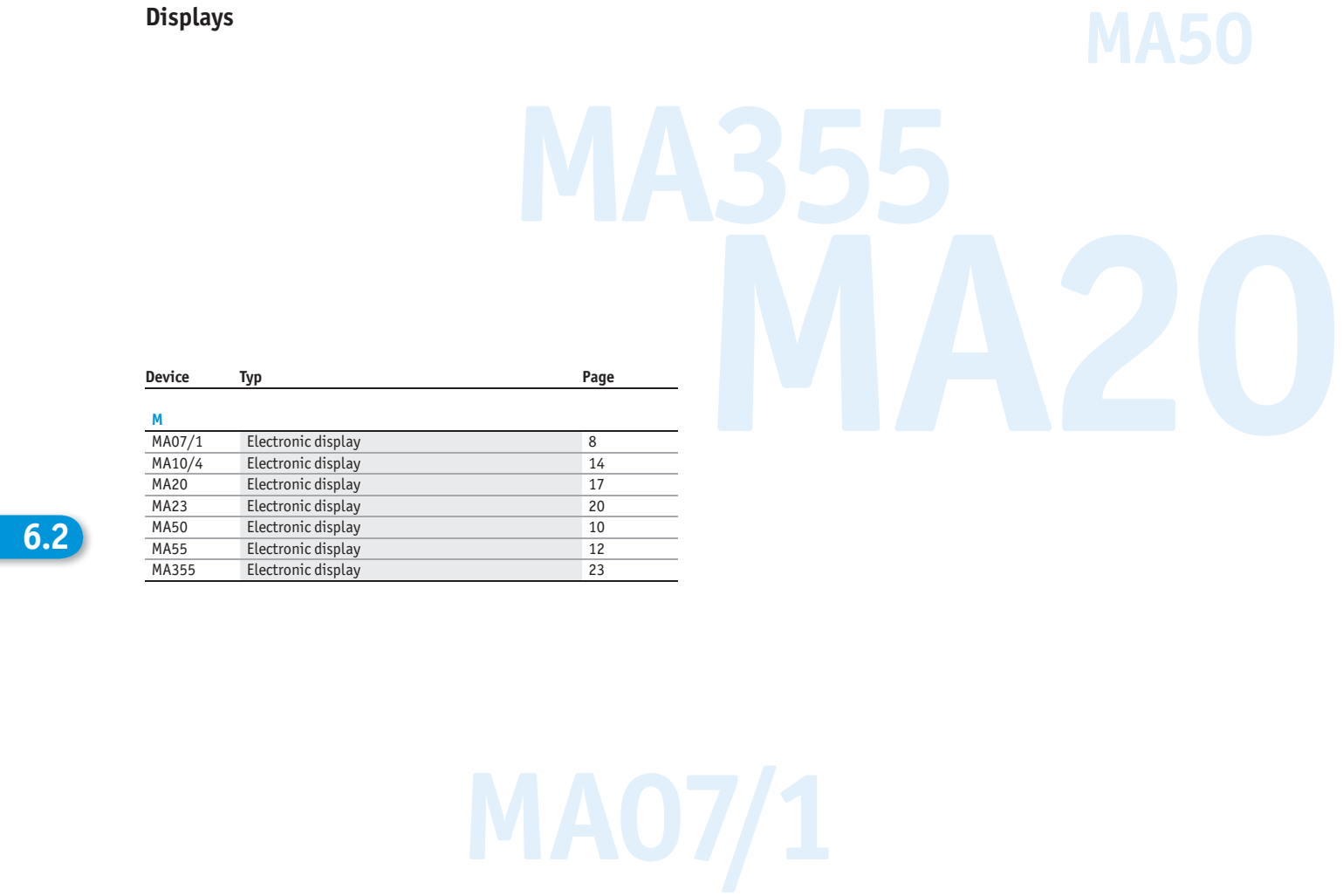

6.2

6.1 | Electronic Displays 3

6.2 | Product Index, Contact Information 28

6.2

Displays



Device	Typ	Page
M		
MA07/1	Electronic display	8
MA10/4	Electronic display	14
MA20	Electronic display	17
MA23	Electronic display	20
MA50	Electronic display	10
MA55	Electronic display	12
MA355	Electronic display	23

Germany

A dealer near you? Our website will help you.
Just enter your postal code at **www.siko.de/en/contact/germany** and you will find the current contact data of the representative in your area. Or give us a call and we will be pleased to pass on the contact data.

International

SIKO is represented by our subsidiaries and trade partners all over the world: **www.siko.de/en/contact/international**

Africa
Republic of South Africa

Asia
China
Indonesia
Israel
Japan
Malaysia
Republic of Korea
Singapore
Taiwan
Thailand
Vietnam

Australia
Australia
New Zealand

Europe
Austria
Belgium
Croatia
Czech Republic
Denmark
Finland
France
Greece
Hungary
Italy
Lithuania
Luxembourg
Netherlands
Norway
Poland
Portugal
Russian Federation
Serbia and Montenegro
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
Ukraine
United Kingdom

America
Brazil
Canada
Mexico
United States

SIKO GmbH
Weihermattenweg 2
D-79256 Buchenbach

Telephone
+49 7661 394-0
Telefax
+49 7661 394-388

E-Mail
info@siko.de
Internet
www.siko.de

Subject to technical alterations 03/2009 – Nr. 84817