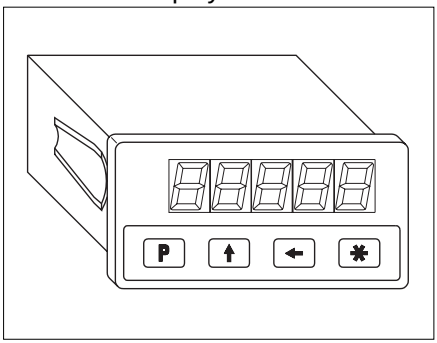
MA50

Electronic Display



ENGLISH

1. Warranty information

• In order to carry out installation correctly, we strongly recommend this document is read very carefully. This will ensure your own safety and the operating reliability of the device.

• Your device has been quality controlled, tested and is ready for use. Please observe all warnings and information which are marked either directly on the device or specified in this document.

• Warranty can only be claimed for components supplied by SIKO GmbH. If the system is used together with other products, there is no warranty for the complete system.

• The guarantee period is 6 months starting with the date of invoice.

• Repairs should be carried out only at our works. If any information is missing or unclear, please contact the SIKO sales staff.

2. Identification

The type plate or the delivery papers indicate the device type.

3. Installation

For mounting, the degree of protection specified must be observed. If necessary, protect the unit against environmental influences such as sprayed water, dust, knocks, extreme temperatures.

3.1 Panel case type EG

1. Panel (A) must be provided with cutout for MA50.

2. Push the display into the panel cutout until the mounting tabs snap completely.

3. Mounting tabs hold the unit, but allow easy removal, too.

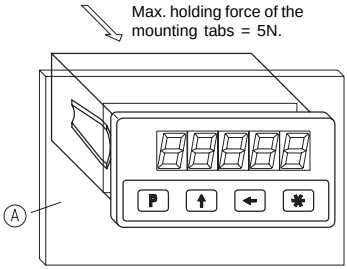


Fig.1: Mounting of panel case EG

4. Electrical Connection

• Wiring must only be carried out with power off!

• Provide stranded wires with ferrules.

• Check all lines and connections before switching on the equipment.

Interference and distortion

All connections are protected against the effects of interference. **The location should be selected to ensure that no capacitive or inductive interference can affect the display or the connection lines!** Suitable wiring layout and choice of cable can minimise the effects of interference (eg. interference caused by SMPS, motors, cyclic controls and contactors).

Necessary measures:

• Only screened cable should be used. Screen should be connected to earth at both ends. Wire cross section is to be at least 0,14 mm^2, max. 0,5 mm^2.

• Wiring to screen and to ground (0V) must be via a good earth point having a large surface area for minimum impedance.

• The unit should be positioned well away from cables with interference; if necessary **a protective screen or metal housing must be provided.** The running of wiring parallel to the mains supply should be avoided.

• Contactor coils must be linked with spark suppression.

Power supply

Operating voltage depends on execution and is indicated in the delivery documentation or on the

identification plate.

e.g.: 10 ... 30VDC

4.1 Terminal layout

The terminal layout differs depending on the operating mode selected in the programming menu (resistance input, voltage input or current input). The terminal layout must comply with the operating mode specified in the programming menu.

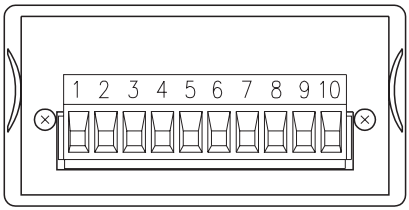
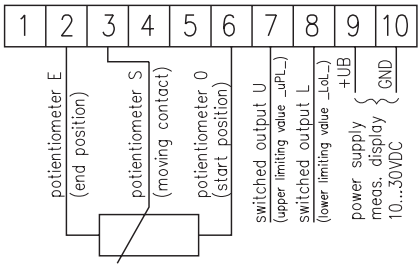
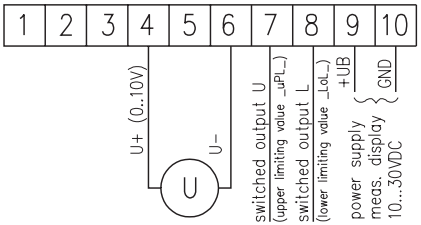


Fig.2: Connection

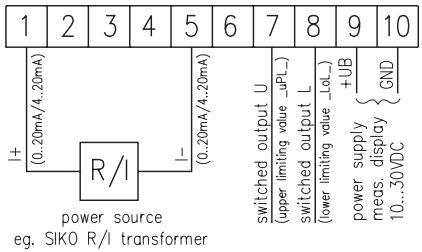
Resistance measurement



Voltage measurement

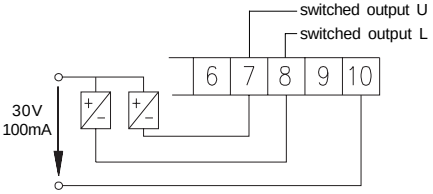


Current measurement



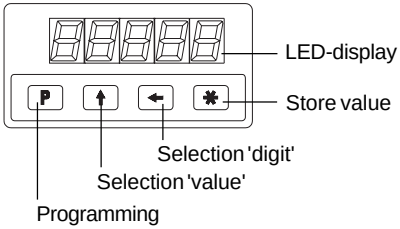
Layout of switching outputs

Two open-collector outputs (switched output U, switched output L) are available.



5. Operation

The four membrane keys are used for operating and programming display MA50. The keys' functions depend upon the operating mode. The keys are pressed singly or in pairs (two together).



6. Commissioning

After switching on the operating voltage, a self test is performed, with the display showing the following values:

- all LED-segments (for approx. 1,5 s)
- the software version (eg. 1.00)
- set operating mode (eg. Poti)

Subsequently the specific parameters of the machine can be programmed.

7. Programming Mode

Ex factory, the display is delivered in the standard setup. The display is usually programmed only once: during commissioning and setup of the display or application, respectively. Parameters can be modified and checked at any time. They are stored in a non-volatile memory. For the designation, function and selectable values refer to the table of chapter 8 (parameter description).

To change and control parameters:
For parameter modification enter into programming mode.

To enter into programming mode:

Press key [P] for at least 5 s (pre-programmed) or for the period programmed under _P_S_.

To leave programming mode:
press key [P] until the end of the parameter list is reached.

To switch on parameter information:
Use key [P].

To change parameters:
Use keys [↑] and [←].

To store modified parameters:
Press key [✱], then message "-SA-" will be briefly displayed.

7.1 Alignment

Before the initial start-up of the display, a once-only alignment of the display must be performed. The alignment is made according to the "teach-in" procedure: 2 points are defined that serve as the basis for a linear equation for the detection of the position.

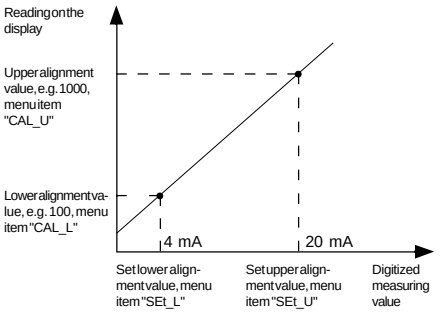


Fig. 3: Alignment (ex. 4..20mA operating mode)

Alignment example with the power input 4..20 mA operating mode (see fig. 3) :

[P] Programming mode
↓
[↑] [✱] Select and save _tYP_ (operating mode) (ex. "4_20")
↓
[P] Select _Ab_U

[↑] [←] [✱] Enter and save lower alignment value (ex. "100")

[P] Select _SEt_U

[✱] Move encoder to the lower alignment value and save the digitized measuring value shown on the display (ex. 4mA≈ "00350")
↓
[P] Select _Ab_O

[↑] [←] [✱] Enter and save upper alignment value (ex. "1000")

[P] Select _SEt_O

[✱] Move encoder to the upper alignment value and save the digitized measuring value shown on the display (ex. 20mA≈ "03900")
↓
[P] Input mode

8. Parameter Description

At the end of this user information brochure you will find a detailed **parameter list** showing all programmable parameters and offering space for customer-specific programming values .

(in English, parameter _LAn_ = "EnGL")

Display "choice"	**Designation / description**
tYP	Operating mode, defines the display's operating mode. Poti resistance input U_10 voltage input 0_20 current input 0..20 mA 4_20 current input 4..20 mA
_dP_	Decimal point *0. , 0.0 ,0.00 , 0.000*
CAL_L	lower alignment value, freely selectable value that is diaplayed if Poti operating mode: initial value e.g. R = 0 Ohm U_10 operating mode: initial value e.g. U = 0 V 0_20 operating mode: initial value e.g. I = 0 mA 4_20 operating mode: initial value e.g. I = 4 mA *0000 ... +/-9999*
SEt _L	set lower alignment value, indication of the digitized input value that is to be saved via the ✱-key after e.g. adjusting the encoder's signal current to the lower alignment value (e.g. 4mA). *0000 ... 4095*
CAL_U	upper alignment value, freely selectable value that is displayed if Poti operating mode: final value

	e.g. R = 10 kOhm U_10 operating mode: final value e.g. U = 10V 0_20 operating mode: final value e.g. I = 20 mA 4_20 operating mode: final value e.g. I = 20 mA *0000 ... +/- 9999*
SEt_U	set upper alignment value, indication of the digitized input value that is to be saved via the ✱ key after e.g. adjusting the encoder's signal current to the upper alignment value (e.g. 20mA) *0000 ... 4095*
uPL **_LoL_**	Lower/upper limiting value: allows upper and lower switch values to be entered when using switched outputs.
L_tYP "AbS"	Interpretation of the limit values: Absolute interpretation: in the case of incremental function, the switching outputs react to the absolute value independent of the displayed value. Possible application: limit switch.
"rEL"	Relative interpretation: switching outputs react to the value shown on the display
_P_S_	Delay of P key (1, 3, 5, 10, 20 second) when switching from input to programming mode
F_rEL	Incremental measurement enable.Switching between absolute measure and zeroing with subsequent relative measure.
"on"	function on
"oFF"	function off
LAn	Language: To choose the language displayed
"GEr"	German
"EnGL"	English
_CtrL	For service only

9. Input Mode

Incremental measurement function

Press keys ✱ to activate incremental measurement function.

- The display is zeroed.
- Decimal point is blinking.
- Leave incremental measurement function press keys ✱. The absolute measuring value is displayed again.

Precondition: Menu point 'Incremental measurement enable' (F_rEL) in programming mode must be programmed to "on", but unit must **not** be left in programming mode (see chapter 7 ,**'To leave** programming mode').

10. Trouble Shooting

Message: Error
Description: Signal current of encoder in the "4...20" operating mode is below 3mA
Action: -check line between encoder and measurement display for interruptions.
-check signal encoder

Message: Decimal point is blinking
Description: Device cannot be calibrated to the set upper or lower alignment value any more.
Action: Device is in the incremental mode. Actuate the ✱ key to enforce return of the display to the absolute measure.

Description: Display does not show the desired values.
Action: Align display (see chapter 7.1)

Appendix: Parameter list

(in English language, parameter _SPr_ = "E")

Display	Designation / value range	Factory setup	Your programming I	Your programming II
tYP	operating mode: Poti, U_10, 0_20, 4_20	Poti		
_dP_	decimal point: 0. , 0.0 ,0.00 , 0.000	0.0		
CAL_L	lower alignment value: 0000 ... +/-9999	0.0		
SEt_L	set lower alignment value: 0000 ... 4095	- -		
CAL_U	upper alignment value: 0000 ... +/-9999	100.0		
SEt_U	set upper alignment value: 0000 ... 4095	- -		
uPL	lower limiting value of swiched outputs: 0000 ... +/-9999	0.0		
LoL	upper limiting value of swiched outputs: 0000 ... +/-9999	0.0		
L_tYP	interpretation of limit value: AbS, rEL	AbS		
_P_S_	delay of P key in seconds: 1, 3, 5, 10, 20	5		
F_rEL	incremental measurement enable: on , oFF	oFF		
LAn	language: GEr, EnGL	GEr		

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