

MC111

Description

This manual describes the MC111 display series. The purpose of this device is to display linear or angular displacements on industrial machines and automation systems. The device can be connected to standard Push-Pull incremental encoders or magnetic sensors (A and B signals).



Chapters

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- 2 Identification
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- 5 Electrical connections
- 6 Functions
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1 - Safety summary

For the electrical connections, we recommend to closely follow these electrical instructions. In particular, according to the 89/336/EEC norm on electromagnetic compatibility, following precautions must be taken:

- Measurement system (sensor) should be installed as close as possible to the display.
- Always use shielded and twisted cables if possible.
- Avoid running the sensor cable near high voltage power cables (e.g. drive cables).
- Install EMC filters on sensor power supply if needed.
- Avoid mounting sensor near capacitive or inductive noise sources and switching power supplies.
- static discharge can damage internal sensitive electronic components. Before handling and installing, discharge electrical charge from your body and tools which may come in touch with the device.



Connect according to the chapter 5: "Electrical connections".

2 - Identification

The device can be identified by the label's data (ordering code, serial number). This information is listed in the delivery document. For technical features of the product, refer to the technical catalogue.

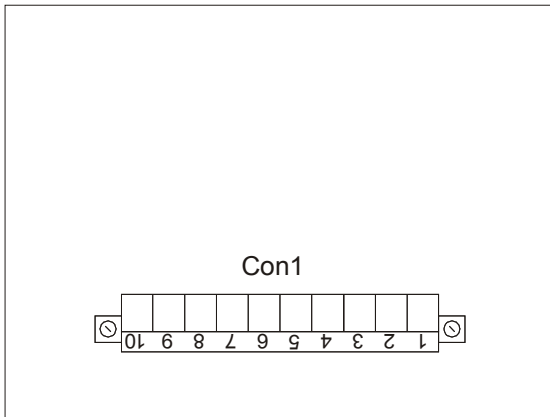
3 - Installation

Install the device according to the protection level provided. Protect the system against knocks, friction, solvents and respect the environmental characteristics of the product.

4 - Mounting recommendations

Push the display into the cut-out (approx. 92 x 68 mm²) without panel clips. Install panel clips on the display's housing and screw until fixed.

5 - Electrical connections



Pin	Function
1	+24Vdc ±10%
2	0Vdc GND
3	A
4	B
5	GND (sensor power supply)
6	+24Vdc (sensor power supply)
7	Input 1: Reset / Output 1 *
8	Input 2: Set / Output 2 *
9	Rectified power supply +
10	Rectified power supply -

*: the outputs are optional (see order code), set P02 correctly.

Input: 0 ÷ 6.5Vdc = "low active"
 8.5 ÷ 30Vdc = "high active"

Output: 24Vdc, 600mA (PNP)

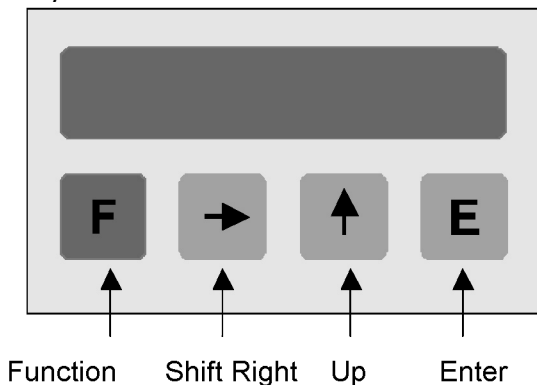
6 - Functions

6.1 Start up

At start up the unit shows the software version followed by actual position.

Software version: **SOF xx**

6.2 Key functions



Key	Function
F	Function (save + exit setup)
→	Shift Right (select parameter / digit)
↑	Up (change value)
E	Enter (save + scroll menu)

6.2.1 Default parameter (factory settings)

Default parameter values are written in **BOLD** characters. The unit can be reset to default values by pushing **F**, **↑** and **E** key while switching on.

6.2.2 Direct functions

To set direct functions, such as reset, reset with datum value, tool correction (offset value), program **P07** parameter.

7 - Set up

7.1 Access to setup menus

Push **F** key to enter setup.

- push **→** to select **Func 1** or **Func 2**
- push **E** to scroll parameters
- push **F** to exit setup

Admissible value range for each parameter is listed as follows: [min. value, max. value]

7.2 Parameter setting

Level 1: Func1

Eich Datum value / Preset [-99999, 999999]

Display can be set to datum value (or preset) by activating SET input or pushing **↑** key.

Default value: **50.0**

Level 2 : Func2

P00 Display value per distance moved [1, 10000]

Enter the value to be displayed when the unit receives the number of pulses per distance moved in parameter P01. Note this value is entered without decimal.

Default value: **100**

P01 Nr. of pulses per distance moved [1, 65000]

The display is always set on 4 edge counting mode. Enter the number of encoder pulses x4 per distance. This same distance unit is used to determine the Display value per distance moved.

Default value: **100**

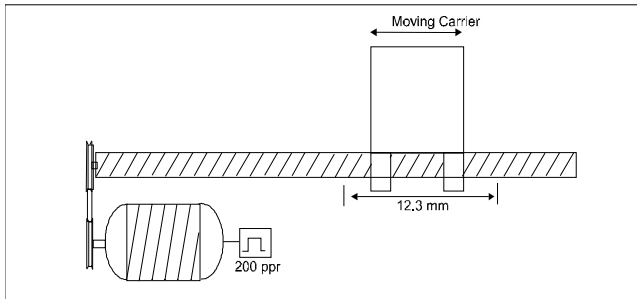
Example:

A ball screw moves 12.3mm per revolution. The system uses a rotary encoder with 200 PPR (pulses per revolution).

In this case:

P00 should be set to 123 (value without decimals)

P01 is 800



P02 Input / Output pin [0, 1]

Sets pins 7 and 8 as input or output.

0 = Input

1 = Output (optional, see order code)

P03 Counting direction [0, 1]

Sets counting direction of display.

0 = standard counting direction

1 = inverted counting direction

P04 Decimal point [1, 4]

Modification of decimal point position. This setting has no influence on other parameters.

0 = 000000

1 = 00000.0

....

4 = 00.0000

P05 Password Level 1 [0, 999999]

Enter desired code number here to prevent operator from entering the "Datum value mode" (Level 1).

Default value: **0**

Attention: Datum value can be set only after digiting the correct password.

To cancel password and restore default value see chapter "Default parameter" (6.2.1).

P06 Password Level 2 [0, 999999]

Enter desired code number here to prevent operator from entering the "Parameter mode" (Level 2).

Default value: **0**

Attention: Datum value can be set only after digiting the correct password.

To cancel password and restore default value see chapter "Default parameter" (6.2.1).

P07 Function of the push buttons [0, 6]

The function of the **↑** and the **E** button in operating mode can be selected.

0 = no functions

1 = **E** will set actual value to zero

2 = **↑** will set actual value to Datum/Preset (Func1)

3 = both functions 1 + 2

4 = **E** activates "Saw blade offset" (P12)

6 = both functions 2 + 4

P08 Reset function [0, 1]

Sets function of Reset input (active if P11 = 0).

0 = static reset. Sets actual value to 0 until input is activated (high).

1 = dynamic reset. Edge triggered Reset input.

P10 Input 2: SET function [0, 1]

Sets function of SET input.

0 = static SET input. Sets display to Preset value until input is activated (high).

1 = dynamic SET. Edge triggered SET input.

P11 Input 1: Reset / Freeze function [0, 1]

Sets function of Reset / Freeze input.

0 = Input 1: Reset function

1 = Input 1: Freeze function

Reset: see P08

Freeze: freeze actual value while internal counter is still active. If P11 = 1, than P08 is unused.

P12 Saw blade offset [-50000, 50000]

Value entered here will be added to or subtracted from actual value by pushing **E** button (with **P07=2**).

Default value: **10.0**

P13 Function input configuration [0, 3]

Chose from NO (Normally Open) or NC (Normally Closed), high active (connected with +24Vdc).

P13	Pin 7	Pin 8
0	NO	NO
1	NC	NO
2	NO	NC
3	NC	NC

P14 Output 1 [-99999, 999999]

Output 1 will be activated when actual value is more than Output 1 value.

Default value: **10.0**

P15 Output 2 [-99999, 999999]

Output 2 will be activated when actual value is more than Output 2 value.

Default value: **20.0**

P16 Output configuration [0, 1]

0 = static output

1 = with output dwell time

P17 Output 1 dwell time [0, 2.50]

Enter output 1 dwell time between 0 and 2.50 seconds. P16 must be 1.

Default value: **0.00**

P18 Output 2 dwell time [0, 2.50]

Enter output 2 dwell time between 0 and 2.50 seconds. P16 must be 1.

Default value: **0.00**

P19 Memory on power down [0, 1]

0 = actual value will be stored on power down

1 = after turning power off and on Display shows "Eich". Display has to be Datumed again before use.

P20 Not used

P21 Output logic [0, 3]

Enter output logic of Output 1 and Output 2.

0 = Output 1 activated when Actual value > P14

Output 2 activated when Actual value > P15

1 = Output 1 activated when Actual value > P14

Output 2 activated when Actual value < P15

2 = Output 1 activated when Actual value < P14

Output 2 activated when Actual value > P15

3 = Output 1 activated when Actual value < P14

Output 2 activated when Actual value < P15

P99 Reserved

8 - Dimensional drawing and cut-out

Check details on product catalogue.

Provide a 92 x 68 mm² (w x h) cut-out.

Rev	SW	Man. Vers.	Description
0	1	1.0	1st issue
1	2	1.1	Chap.5 update, P21 correction



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