

# migra MPB AD

Graphics Compatible Large Format LED Display with A-D Converter

## User's Manual

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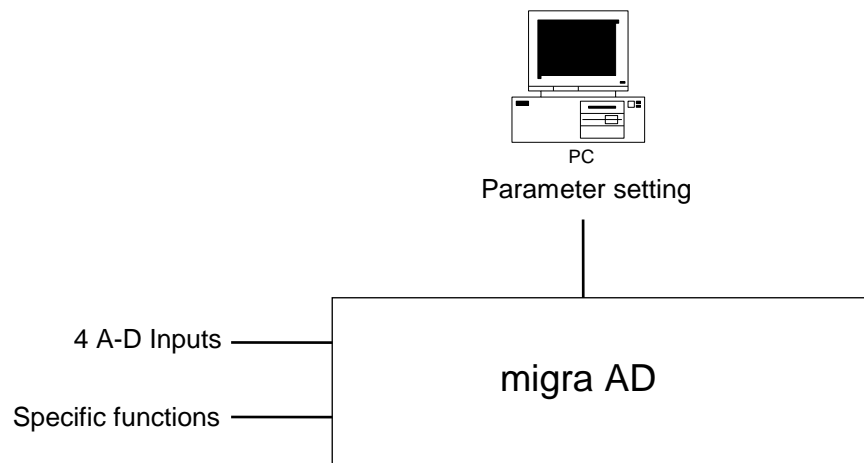
## 1 General

This device can be used universally for displaying production data, or as an information board.

The modular design allows for cost-effective models of various sizes, and with different character heights and numbers of digits.

Thus integration into existing equipment or systems is easy and simple.

## 2 Overview



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## 3 Technical Data

Display type:	LED dot matrix display
Display color:	type SC: single colour, type MC multicolour
Operating voltage:	230 V / 50 Hz, 110 V / 60 Hz or 24 VDC $\pm 20\%$
View:	single or double sided
Channels:	1 to max. 4
Display:	0 to $\pm 19999$ or customer specific
Display range and decimal point:	adjustable via software
Input range:	-10 to $\pm 10$ VDC, -20 to 20 mA
Labelling:	upon request
Housing:	industrial version, powder coated aluminium
Housing dimensions:	see chapter "Device Configuration"
Mounting:	articulated arm, angle bracket, hanging with chain or mounting frame
Protection:	IP54 or IP65
Operating temperature:	0 to +50 °C (optionally -20 to +50 °C)
Storage temperature:	-25 to +70 °C
Features:	under and overflow display, relay output (optional)

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## 3.1 Device Details

Itemnumber : \_\_\_\_\_

Number of pixels (horizontal x vertical): \_\_\_\_\_ x \_\_\_\_\_

Number of Lines:  1     2     3     4

Number of Digits:

1     2     3     4     5     Signed

Display range and dimension:

Line 1:        \_\_\_\_\_ - \_\_\_\_\_  
 Line 2:        \_\_\_\_\_ - \_\_\_\_\_  
 Line 3:        \_\_\_\_\_ - \_\_\_\_\_  
 Line 4:        \_\_\_\_\_ - \_\_\_\_\_

Input range:

Line 1:     4 to 20 mA     0 to 10 VDC     \_\_\_\_\_  
 Line 2:     4 to 20 mA     0 to 10 VDC     \_\_\_\_\_  
 Line 3:     4 to 20 mA     0 to 10 VDC     \_\_\_\_\_  
 Line 4:     4 to 20 mA     0 to 10 VDC     \_\_\_\_\_

View:

single sided     double sided

Operating voltage:

230 V / 50 Hz     110 V / 60 Hz     24 V DC

Protection:

IP40     IP54     IP65     IP \_\_\_\_\_

Operating temperature:

with type for inside use:    with type for outside use:    special version:  
 0...+50 °C (standard)     -20...+50 °C (standard)     \_\_\_\_\_ °C  
 -25...+50 °C (optional with heating)

Housing dimensions:

\_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_ mm

Housing Material:

Aluminum profile     Stainless steel     Sheet metal

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## 3.2 Notes for the start-up

- When putting on the power supply, the following sequence has to be observed:
  - Connect the power supply cable to the display.
  - Connect the power supply cable to the power supply.
- Directly after connecting the A-D inputs, the display shows the corresponding values.
- When disconnecting the power supply, the following sequence has to be observed:
  - Disconnect the power supply cable from the power supply.
  - Disconnect the power supply cable from the display.

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## 3.3 Device Configuration

The device is already configured at the time of delivery. However, if you want to do some changes, you can use the tools “MKS” and “micon”.

The software “MKS” serves for settings regarding the A-D converter.

The software “micon” serves for display configuration.

### 3.3.1 Settings with “MKS”

- Output characteristics
- Limiting values
- Update interval
- Number of decimal places
- Suppressing of leading zeros
- Rounding output value
- Increment
- Averaging
- Blinking rate
- Bargraph
- Status outputs

Please refer to the user’s manual “MKS” for further information’s.

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## 3.3.2 Settings with “micon”

- Character set
- Font size
- Display colour
- Length of variables
- Start coordinates

You must specify variables with the configuration software “micon” in order to display values. Every variable corresponds with a measuring channel:

V0 -> measuring channel 1

V1 -> measuring channel 2

V2 -> measuring channel 3

V3 -> measuring channel 4

Please see user’s manual “micon” for additional information concerning the display configuration.

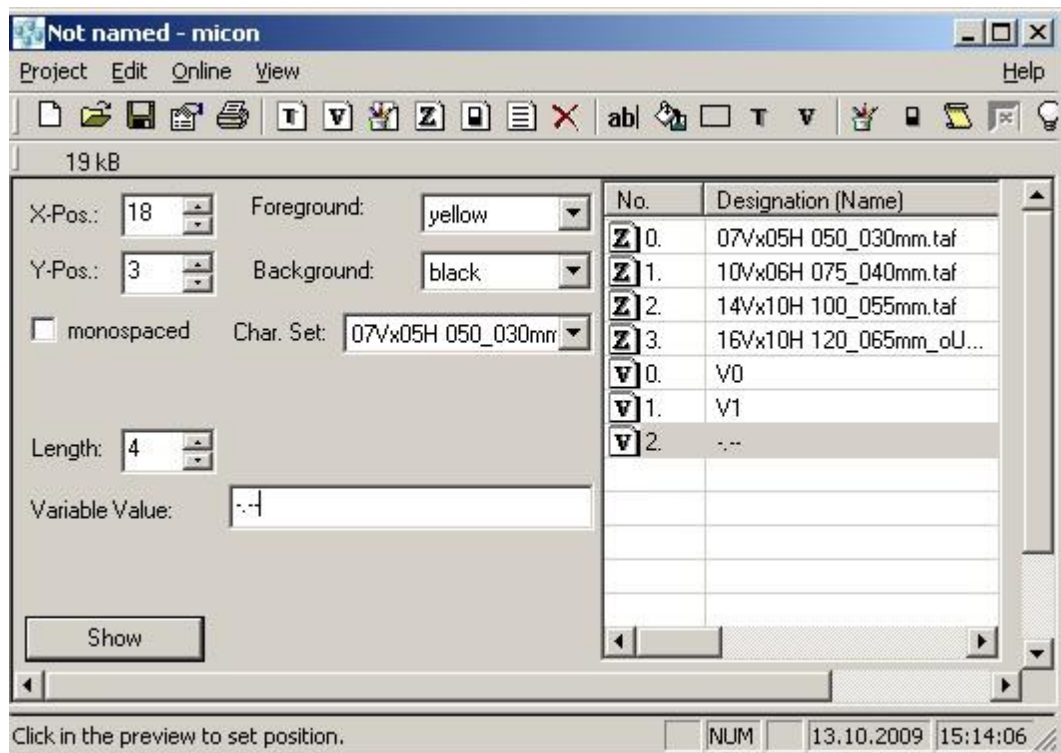


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## Example Configuration:

The display has only one current input and displays this value immediately after the power-up. The value range is from 0.00 to 9.99.



If only measuring channel for the current is used, you need measuring channel 3, which corresponds with variable 2. It's not possible to create only one variable with the number 2, since the variable numbers are assigned automatically. This means, variables 0 and 1 must be specified in addition, even if their content is not relevant.

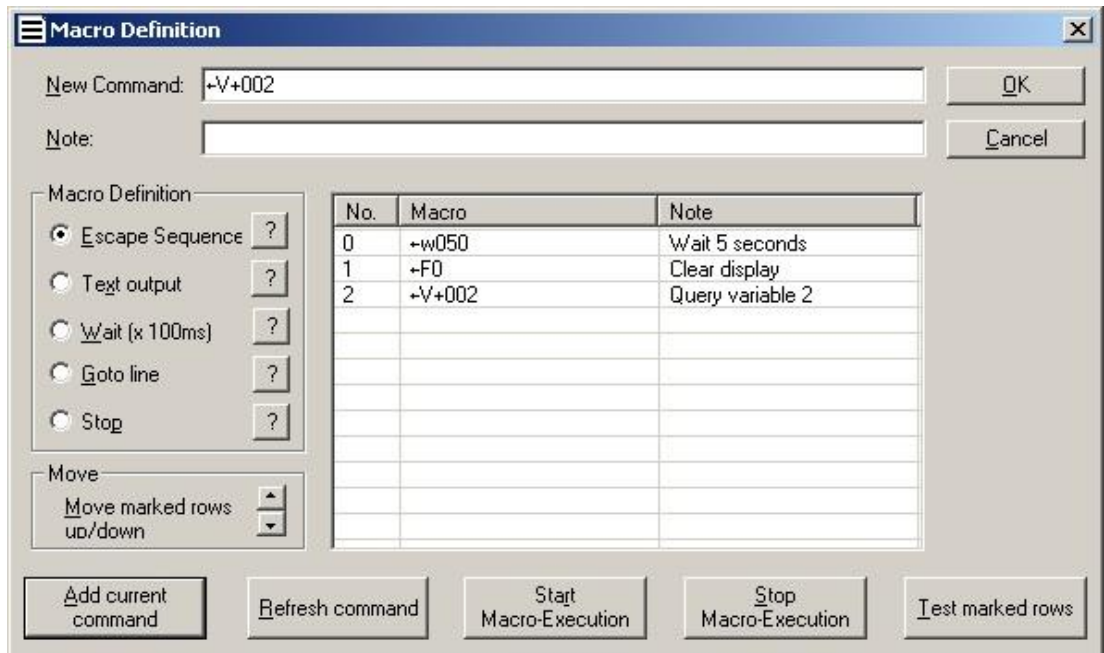
Depending on the character set, the option "monospaced" must be set.

For more information concerning variables see user's manual "micon".

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The command for querying variable 2 must be added to the macro list in order to display the value immediately after the startup.

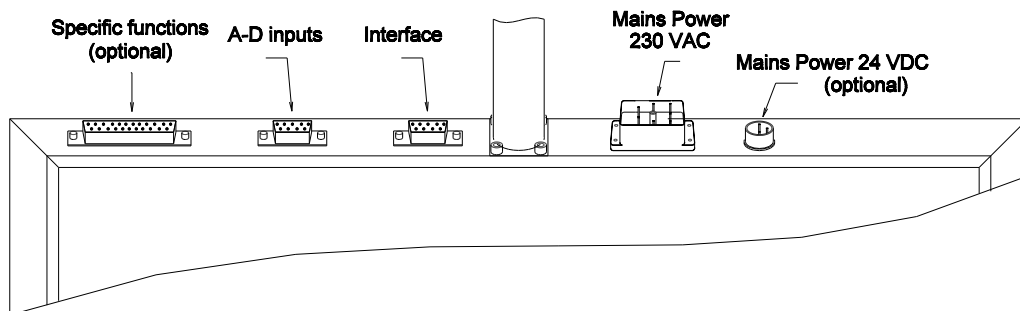


Please see user's manual "micon" for further description.

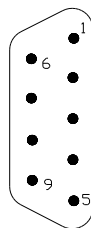
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## 4 Connector Pin Assignments



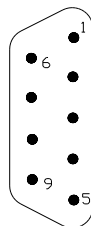
### 9-Pole Sub-D Plug Connector (A-D inputs)



Pin	Assignment
1	Channel 1 +
2	Channel 2 +
3	Channel 3 +
4	Channel 4 +
5	
6	Channel 1 -
7	Channel 2 -
8	Channel 3 -
9	Channel 4 -

If using only one voltage input, channel 1 is used!  
 If using only one current input, channel 3 is used!

### 9-Pole Sub-D Plug Connectors (RS232-migra)

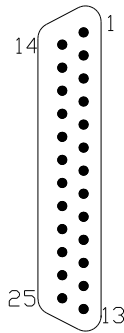


Pin	Assignment
1	
2	RS232 RxD
3	RS232 TXD
4	
5	RS232 GND
6	
7	
8	
9	

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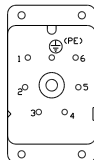
## 25-Pole Sub-D Plug Connector (Specific functions, optional mounted)



Pin	Assignment	Pin	Assignment
1	Overflow + (+ is external...)	14	Overflow -
2	Underflow +	15	Underflow -
3	Upper critical value +	16	Upper critical value -
4	Lower critical value +	17	Lower critical value -
5	User defined value 1 +	18	User defined value 1 -
6	User defined value 2 +	19	User defined value 2 -
7	Relay, break contact*	20	Relay, close contact*
8	GND	21	Relay, common contact*
9	External Vin	22	n. c.
10	Display hold	23	GND
11	Button „+“	24	GND
12	Button „-“	25	GND
13	Button „Select“		

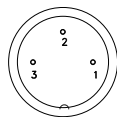
\*max. switching voltage: 175 VDC or 175 VAC peak  
 max. switching current: 250 mADC or 250 mAAC peak

## 7-Pole Mains Plug (230 VAC)



Pin	Assignment
1	L1
2	N
⊕ (PE)	PE

## 3-Pole Circular Connector (24 VDC, optional mounted)

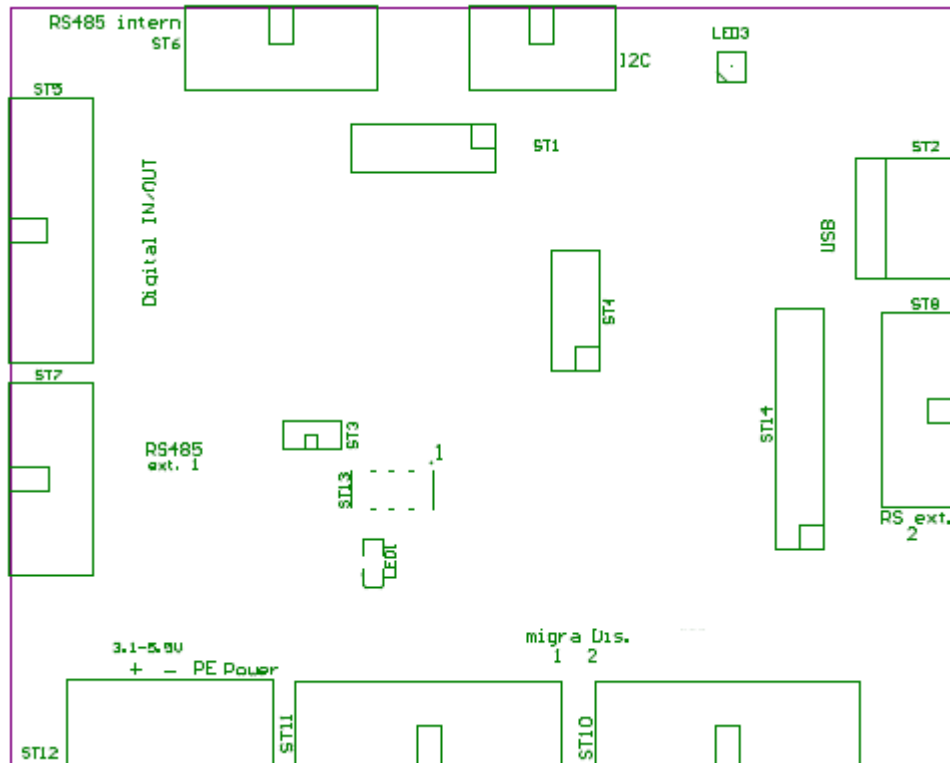


Pin	Assignment
1	GND
2	+24 VDC
3	PE

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## 5 Interface Configuration



The display unit is delivered with the following default settings:

- Baud rate: 19200 baud
- Data bits: 8
- Parity: even
- Stop bits: 1.

For setting the serial interfaces the PC software MKS is mandatory.

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## 5.1 LEDs

LED	Function / Description	
LED 1 (green)	Power-up:	Blinks at a frequency of approx. 2,5 Hz
	Normal operation:	Blinks at a frequency of approx. 5 Hz
	Boot mode:	Blinks at a frequency of approx. 0,5 Hz
	Software upload:	Flickers during the upload
	Configuration:	
	Defective MKS:	Blinks with an Error Code: 1x
	Defective Micon:	Blinks with an Error Code: 2x
LED 3 (blue)	Video-signal:	On
	No Video-signal:	Off

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## 6 Appendix

### EU-Konformitätserklärung EU Declaration of Conformity

**Produktbezeichnung:** migra  
*Product name:*

**Typenreihe:** migra AD  
*Type code:*

**Hersteller:** microSYST Systemelectronic GmbH  
*Manufacturer:* Am Gewerbepark 11  
92670 Windischeschenbach

<b>Das bezeichnete Produkt stimmt mit der folgenden Europäischen Richtlinie überein:</b> <i>We herewith confirm that the above mentioned product meets the requirements of the following standard:</i>		<b>Die Übereinstimmung des bezeichneten Produktes mit den Vorschriften der angewandten Richtlinie(n) wird nachgewiesen durch die Einhaltung folgender Normen / Vorschriften:</b> <i>The conformity of the product described above with the provisions of the applied Directive(s) is demonstrated by compliance with the following standards / regulations:</i>
<b>Richtlinien / Directives</b>		<b>Europäische Norm / Standard</b>
<b>EMV Richtlinie</b> <i>EMC Directive</i>	<b>2014/30/EU</b>	EN61000-6-2:2005
		EN61000-6-4:2007 +A1:2011
<b>Niederspannungs-Richtlinie</b> <i>Low Voltage Directive</i>	<b>2014/35/EU</b>	EN60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013
<b>RoHS Richtlinie</b> <i>RoHS Directive</i>	<b>2011/65/EU</b>	EN50581:2012

Windischeschenbach, 16.11.2017



Manuel Raß

**Geschäftsführer / General Manager**

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## 6.1 Maintenance and Care

Observe the following instructions in order to assure best possible performance of the display.

- Make sure that the housing can be opened for adjustment and maintenance even after the display has been installed. Allow for adequate clearance at the back, front and top of the display unit in order to follow for sufficient ventilation (if vent slots are included).
- Display quality is impaired by direct illumination with bright light sources and/or direct sunlight.
- The display must be switched off before cleaning.
- Protect the display from excessive humidity, extreme vibration, direct sunlight and extreme temperatures. Non-observance may lead to malfunctioning or destruction of the device. Under certain circumstances electrical shock, fire and explosion may occur as well. Information concerning allowable ambient conditions, including recommended temperature ranges, can be found in the chapter entitled „Technical Data“.
- The display may not be placed into service if the device and/or the power cable are known to be damaged.
- Do not attempt to repair the device yourself. The guarantee is rendered null and void if unauthorized persons tamper with the device.



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## 6.2 Warranty / Liability

For the product, liability is assumed for defects, which existed at the delivery date according to our General Terms and Conditions.

Technically changes as well as errors are excepted. A claim for delivery of a new product does not exist. The buyer has to check the received product immediately and indicate evident defects at the latest 24 hours after detection. Non-observance of notification requirements is equated with acceptance of the defect. Not immediately visible defects have to be indicated immediately after their perception too.

Generally, defects and their symptoms must be described as accurately as possible in order to allow for reproducibility and elimination. The buyer must provide for access to the relevant device and all required and/or useful information at no charge and must make all of the required data and machine time available free of charge.

The guarantee does not cover defects, which result from non-observance of the prescribed conditions of use, or from improper handling.

If the device has been placed at the disposal of the buyer for test purposes and has been purchased subsequent to such testing, both parties agree that the product is to be considered "used" and that it has been purchased "as is". No guarantee claims may be made in such cases.

The General Terms and Conditions of microSYST Systemelectronic GmbH in current version apply as well.

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## 6.3 Versions Overview

Ver.	Date	Remark, Description
1.00	8/17/05	Kreuzer
1.10	11/7/05	Kreuzer: Additional information to RS232 (chapter "Connector Pin Assignments")
1.20	10/13/09	Kreuzer: Example configuration
1.30	08/16/10	Technical data updated
1.40	3/25/13	Company address, declaration of conformity, warranty
1.50	10/18/13	Logo
1.60	3/19/15	SC/MC removed
1.70	4/29/16	Declaration of conformity
2.00	11/18/16	migra → migra MPB
2.10	11/13/17	Change of address and title MPB

Certified per **DIN EN ISO 9001**.