

mipan AD

Numeric Panel-Mount LED Display with A-D Converter

User's Manual



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Numeric Panel-Mount LED Display with A-D Converter

Table of Contents

1	GENERAL	3
1.1	Special Features	3
2	APPLICATIONS EXAMPLE	4
3	TECHNICAL DATA	5
3.1	Zero Balancing	6
3.2	Upper Range Value	6
3.3	Adjustable Display Ranges	6
4	CONNECTOR PIN ASSIGNMENTS	7
5	HOUSING DIMENSIONS	10
5.1	Installation / Mounting	10
6	APPENDIX	11
6.1	Standard Equipment	11
6.2	Optional Accessories	11
6.3	Order Numbers	11
6.4	Maintenance and Care	12
6.5	Warranty / Liability	13
6.6	Declaration of Conformity	14
6.7	Versions Overview	15

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1 General

The numeric panel mount LED display with integrated A-D converter is suitable for applications in which analogue input signals are converted to digital values.

Various input and output ranges can be selected.

The display unit is exceptionally well suited for industrial applications thanks to its rugged construction and metal housing.

1.1 Special Features

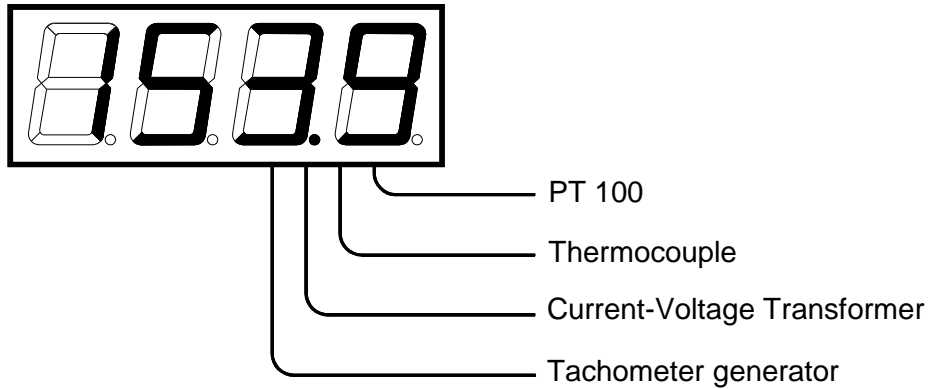
The device is equipped with the following important functional features:

- Max. display range: ± 1999
- Three direct voltage measuring ranges: 0 to 2 V, 0 to 10 V and 1 to 5 V
- Two direct current measuring ranges: 0 to 20 mA and 4 to 20 mA
- Measuring ranges can be freely selected with SMD slide switches.

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2 Applications Example



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3 Technical Data

General Specifications		Power Consumption
Display type:	7- segment LED	Character Height: 10 mm: approx. 0.15 W per digit 13 mm: approx. 0.15 W per digit 20 mm: approx. 0.2 W per digit
Character height:	10 mm, 13 mm, 20 mm	
Digits:	3½	
Display colour:	red, green	
Display:	000 to ±1999	
Decimal point:	permanently set to desired value	
Input range:	0 to ±2 VDC, 0 to ±10 VDC, 1 to ±5 VDC	
	0 to ±20 mA, 4 to 20 mA	
Input impedances:	voltage measurement: 0.75 MΩ current measurement: 100 Ω	
Operating voltage:	24 VDC +/- 20 %	
Polarity:	"-" automatic	
Overflow display:	"1..."	
Error limits:	+/- 0.05 % + 1 digit	
Decimal point:	adjustable via DIP switches	
Housing:	DIN panel-mount housing, metal with special surface finish	
Housing size:	see chapter 5	
Mounting:	screw clamps	
Protection:	front panel: IP54 or IP65	
Operating temp.:	0 to +50 °C	
Storage temperature:	- 20 to +70 °C	

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Numeric Panel-Mount LED Display with A-D Converter

3.1 Zero Balancing

Potentiometer P1 allows for zero balancing with reference to the selected measuring range.

3.2 Upper Range Value

Upper range value adjustment can be performed with potentiometer P2. This operation must be repeated when the measuring range is changed.

3.3 Adjustable Display Ranges

At standard devices, the following display values can be adjusted with the potentiometers:

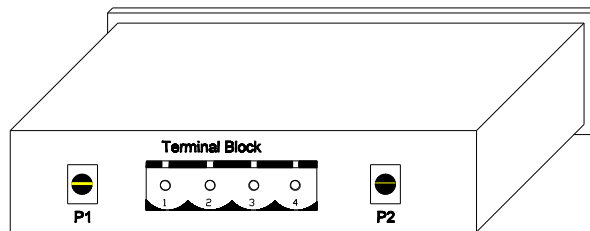
Input Range	Initial Value	Upper Range Value
0...±2 VDC	X	approx. 600 to 1999
0...±10 VDC	X	approx. 625 to 1999
1...±5 VDC	approx. -75 to 275	at 1 V = 0: approx. 1730 to 1999
0...20 mA	X	approx. 580 to 1999
4...20 mA	approx. -435 to 75	at 4 mA = 0: approx. 580 to 1999

X = not adjustable

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4 Connector Pin Assignments



4-Pole Terminal Block



PIN	Terminal Block
1	Input range (+)
2	Input range (-)
3	Ground 0 VDC
4	Operating voltage 24 VDC

Potentiometer P1

Zero balancing

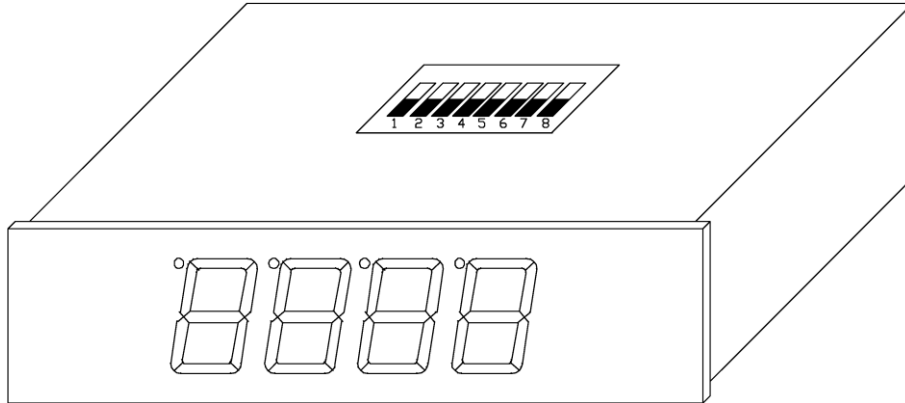
Potentiometer P2

Upper range value adjustment

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DIP Switches



Decimal points:



point 10^1



point 10^2



point 10^3

Measuring Range from 0 to 20 mA



Input: 0..20 mA
Display: 0..1999

Measuring Range from 4 to 20 mA



Input: 4..20 mA
Display: 0..1999

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Measuring Range from 0 to 2 V



Input: 0..2 VDC
Display: 0..1999

Measuring Range from 0 to 10 V



Input: 0..10 VDC
Display: 0..1999

Measuring Range from 1 to 5V

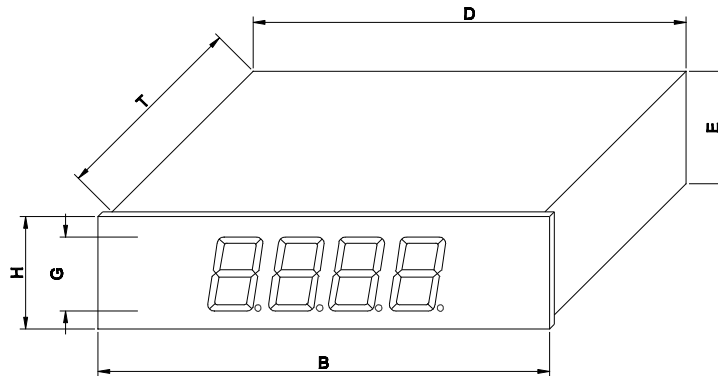


Input: 1..5 VDC
Display: 0..1999

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5 Housing Dimensions



Variable Dimensions

Char. Height G	Digits	B	H	D	E	T
10	3 ¹ / ₂	48	24	43.5	20	60
13	3 ¹ / ₂	96	24	92	20	60
20	3 ¹ / ₂	96	48	92	43	60

All dimensions in mm

Panel Cutouts:

Cutout dimensions for mounting to a panel

Char. Height G	Digits	Cutout Dimensions
10	3 ¹ / ₂	45 ^{+0.6} x 22.2 ^{+0.3}
13	3 ¹ / ₂	92 ^{+0.8} x 22.2 ^{+0.3}
20	3 ¹ / ₂	92 ^{+0.8} x 45 ^{+0.6}

All dimensions in mm

5.1 Installation / Mounting

The device is inserted into the panel cutout from the front. The screw clamps are then set into place and are clamped to the control panel by tightening the headless screw.

A rubber gasket seals the device's front panel against the control panel (IP65).

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6 Appendix

6.1 Standard Equipment

- Display with current software and hardware versions
- Mounting materials (screw clamps M2,5)
- Mating plug for power supply
- User's manual.

6.2 Optional Accessories

- User's manual, German and English
- Mounting materials (screw clamps M4)
- Mating plug for power supply.

6.3 Order Numbers

Designation	Order Number
User's manual (German)	X-M21-1S148X-002
User's manual (English)	X-M22-1S148X-002
Mounting materials screw clamps M4	G-S-036
3-pole socket connector	M-B-B-E-4-010

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6.4 Maintenance and Care

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

- The display must be switched off before cleaning. Only solvent-free cleaners may be used, as the surface of the housing may otherwise be damaged. Under no circumstances may moisture be allowed to enter the interior of the device during 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 and atmospheric humidity 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 open or repair the device yourself. The guarantee is rendered null and void if the device is tampered with by unauthorised persons.

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6.5 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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6.6 Declaration of Conformity

EU-Konformitätserklärung

EU Declaration of Conformity

Produktbezeichnung: mipan
Product name:

Typenreihe: mipan AD
Type code:

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

Das bezeichnete Produkt stimmt mit der folgenden Europäischen Richtlinie überein: <i>We herewith confirm that the above mentioned product meets the requirements of the following standard:</i>		Die Übereinstimmung des bezeichneten Produktes mit den Vorschriften der angewandten Richtlinie(n) wird nachgewiesen durch die Einhaltung folgender Normen / Vorschriften: <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>
Richtlinien / Directives		Europäische Norm / Standard
EMV Richtlinie <i>EMC Directive</i>	2014/30/EU	EN61000-6-2:2005
		EN61000-6-4:2007 +A1:2011
RoHS Richtlinie <i>RoHS Directive</i>	2011/65/EU	EN50581:2012

Windischeschenbach, 07.12.2017


 Manuel Raß

Geschäftsführer / General Manager

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6.7 Versions Overview

Ver.	Date	Comments, Description
1.00	7/16/99	
1.01	11/13/01	Description of DIP-Switches (ON/OFF) added
1.10	12/13/01	Kreuzer: Layout
1.11	04/08/02	Kreuzer: Layout
1.20	12/16/02	Kreuzer: New logo
1.30	06/30/05	Kreuzer: Description of the DIP switches changed
1.40	02/15/06	Kreuzer: New chapter "Adjustable Display Ranges"
1.50	10/18/10	Housing size 72 x 24 mm removed
1.60	03/18/13	Declaration of conformity, warranty / liability changed
1.70	10/22/13	Logo
1.80	2/5/14	Input impedances added
1.90	4/29/16	Declaration of conformity
2.00	12/07/17	Change of address

Certified per **DIN EN ISO 9001**.