mipan AD

Numeric Panel-Mount LED Display with A-D Converter

User's Manual

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

mipan AD

Numeric Panel-Mount LED Display with A-D Converter

Table of Contents

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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.

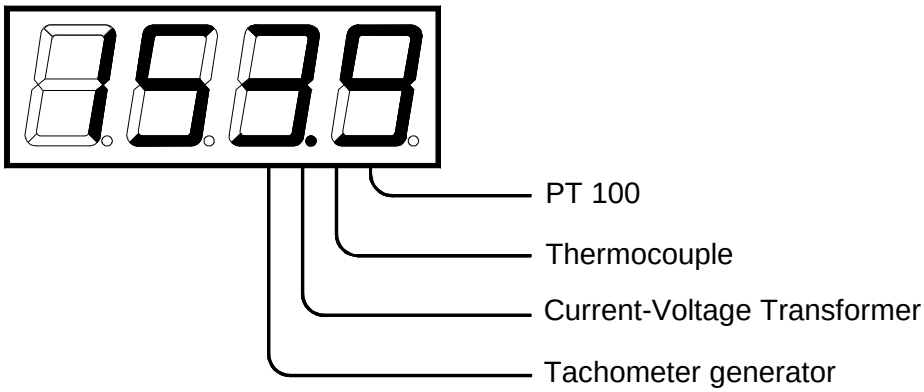
1.1 Special Features

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.

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

2 Applications Example



microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

3 Technical Data

General Specifications		Power Consumption
Display type:	7- segment LED	Character Height:
Character height:	10 mm, 13 mm, 20 mm	10 mm: approx. 0.15 W per digit
Digits:	3½	13 mm: approx. 0.15 W per digit
Display colour:	red, green	20 mm: approx. 0.2 W per digit
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	

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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

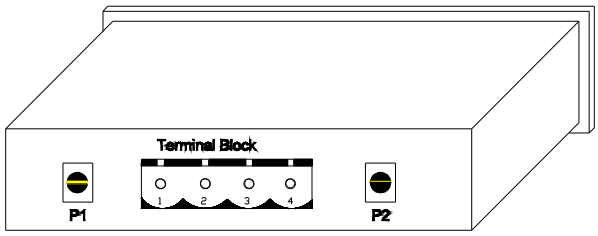
At standard devices, the following display values can be adjusted with the potentiometers:

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

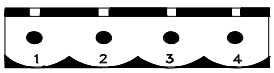
X = not adjustable

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

4 Connector Pin Assignments



4-Pole Terminal Block



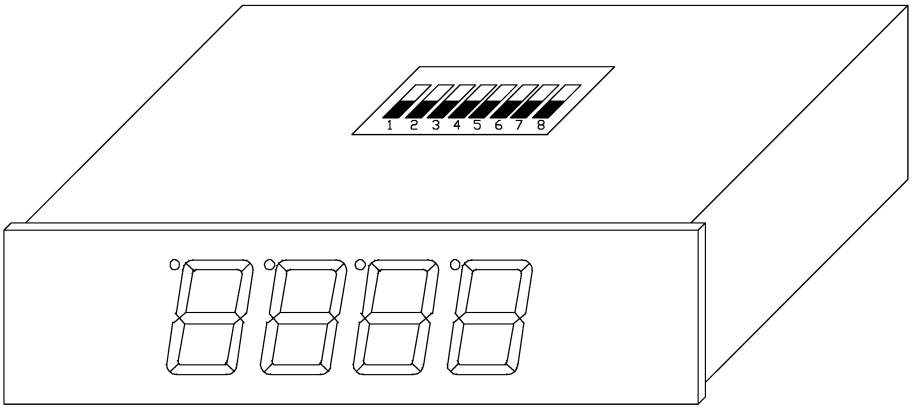
PIN	Terminal Block
1	Input range (+)
2	Input range (-)
3	Ground 0 VDC
4	Operating voltage 24 VDC

Potentiometer P1 Zero balancing

Potentiometer P2 Upper range value adjustment

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

Measuring Range from 0 to 2 V

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

Measuring Range from 0 to 10 V

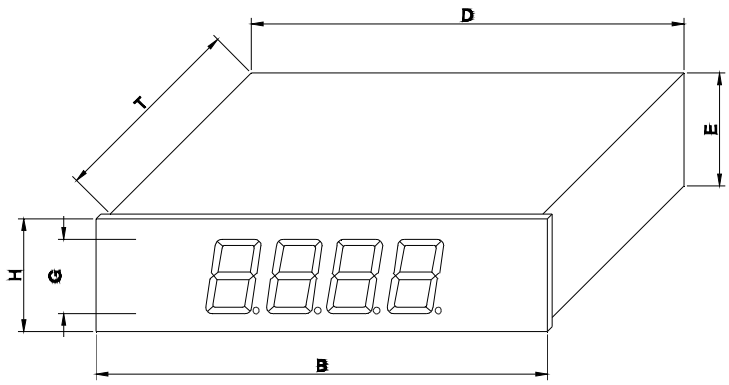
Input: 0..10 VDC
Display: 0..1999

Measuring Range from 1 to 5V

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

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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).

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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.

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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.

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

6.6 Declaration of Conformity

EG-Konformitätserklärung
Declaration of EC-Conformity

Produktbezeichnung: **mipan AD**
Product name:

Produktbeschreibung: Numerische LED-Einbauanzeige mit A/D-Wandler
Product description: Numeric Panel-Mount LED Display with A-D Converter

Hersteller: microSYST Systemelectronic GmbH
Manufacturer: Albert-Einstein-Straße 7
92637 Weiden

Das bezeichnete Produkt stimmt mit der folgenden Europäischen Richtlinie überein: We herewith confirm that the above mentioned product meets the requirements of the following standard:		**Die Übereinstimmung des bezeichneten Produktes mit den Vorschriften der Richtlinie wird nachgewiesen durch die vollständige Einhaltung folgender Normen:** The correspondence of the above mentioned product with these requirements is proved by the fact that these products meet with the following single standards:
Nummer	**Bezeichnung**	**Europäische Norm**
2004/108/EG	**Elektromagnetische Verträglichkeit (EMV)**	EN61000-6-2:2006
		EN61000-6-4:2007

Weiden, den 13.03.2013

ppa. H. Kilian

Harald Kilian

Leiter operatives Geschäft / COO
Prokurist / Authorized Signatory

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de

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

Certified per **DIN EN ISO 9001.**

microSYST Systemelectronic GmbH, Albert-Einstein-Straße 7, 92637 Weiden, Germany
Tel. +49 961 39166-0, Fax +49 961 39166-10, www.microsyst.de, info@microsyst.de