mipan SI

Numeric Panel-Mount LED Display with Serial Interface

User's Manual

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1 General

The numeric panel mount LED display has been designed for industrial applications.

The three different front panel sizes available for this high performance display unit, i.e. 96 x 24 mm, 96 x 48 mm and 144 x 48 mm, and an overall depth of only 60 mm allow for space saving installation.

A large operating voltage range assures reliable operation, even where voltage fluctuations might otherwise cause problems.

The device is available with the following interfaces: RS 485, RS 232 or TTY passive.

1.1 Special Features

The device is equipped with the following important functional features:

- Various interfaces
- Adaptation to existing data telegrams
- Exceptional price-efficiency ratio
- DIN panel-mount housing, metal with special surface finish.

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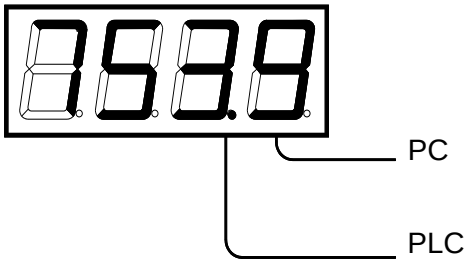
2 Applications Examples

The display can be driven via three serial interfaces (RS 232, RS 485 and TTY passive).



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3 Technical Data

General Specifications		Power Consumption
Display type:	7 segment LED	
Character height:	13 mm, 20 mm or 30 mm	Character Height:
Digits:	4 or 6	13 mm: prox. 0.15 W per digit
Display colour:	red, green	20 mm: prox. 0.2 W per digit
Operating voltage:	24 VDC +/- 20 %	30 mm: prox. 0.3 W per digit
Interface:	serial bus compatible RS 485, RS 232, TTY passive	
Protocol:	ASCII	
Display:	0 1 2 3 4 5 6 7 8 9 A b C d E F o P r U	
Baud rate:	1.2, 2.4, 4.8, 9.6 kBaud	
Addresses:	01 through 99	
Parity:	even, odd, none	
Dimensional display:	upon request	
Housing:	DIN panel-mount housing, metal with special surface finish	
Housing dimensions:	see chapter 5	
Protection:	front panel: IP54 or IP65	
Mounting:	screw clamps	
Operating temp.:	0 to + 50 °C	
Storage temp.:	- 25 to + 70 °C	

3.1 Bus Termination

The device is not equipped with a bus termination. According to the specification for the RS 485 interface, an appropriate bus termination must be installed at the beginning and at the end of the bus cable.

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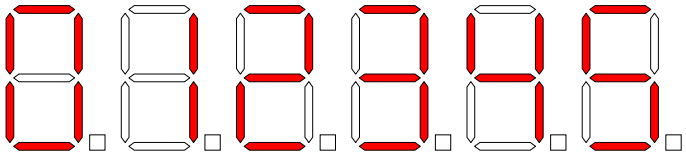
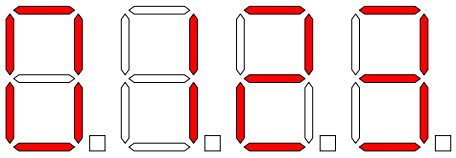
3.2 Start-Up Performance

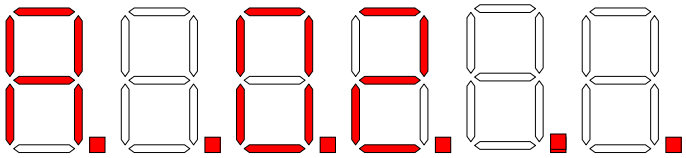
The following character sequence appears at the 6-digit display after supply power has been switched on, or after a reset



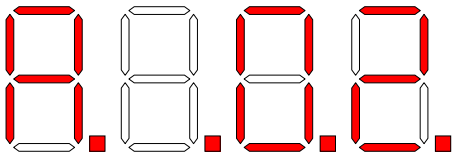
The following sequence appears at the 4-digit display:



Thereafter, the selected device address appears at the 6-digit display as follows:



or as follows at the 4-digit display:



The display goes blank after approximately 2 seconds, and is then ready to receive and display data.

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3.3 Displayable Characters and Transmission Protocol

1 start bit / 8 data bits (the highest value bit is always 0) / 1 parity bit / 1 stop bit

0 1 2 3 4 5 6 7 8 9 A b C d E F o P r U . -

STX Adr. H Adr. L P1 P2 P3 DB1...DB6 ETX

STX = start byte code 02H
ADR. H = device address, high (10^1) code 30H...39H
ADR. L = device address, low (10^0) code 30H...39H
P1 = decimal byte 1
coding: 0 1 0 X X X X X
| | | | |
| | | | decimal point at digit 5
| | | decimal point at digit 4
| | decimal point at digit 3
| decimal point at digit 2
decimal point at digit 1
P2 = decimal byte 2
coding: 0 1 0 X 0 0 0 0 0
|
decimal point at digit 6
P3 = decimal byte 3
coding: 0 1 0 0 0 0 0 0
DB1 = character for digit 1 in ASCII code
:
:
DB6 = character for digit 6 in ASCII code
ETX = end byte, code 03H

If a deviation from the prescribed protocol should occur, the entire entry is ignored.
If address 00 is broadcast, all interconnected devices are addressed simultaneously.

3.4 Error Messages

P Error: Parity error
F Error: Frame error
O Error: Overrun error

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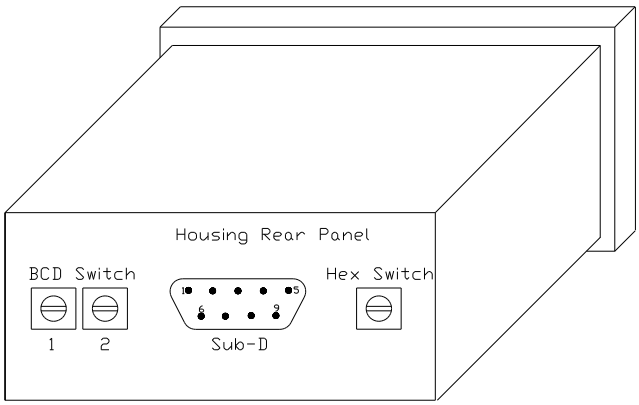
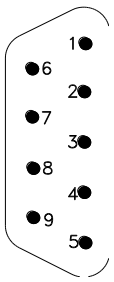
4 Connector Pin Assignments



9-Pole Sub-D Plug Connector



PIN	RS 485 / RS 232 / TTY passive
1	+24 VDC
2	0 VDC
3	Rx+ (RS485)
4	Rx- (RS485)
5	* GND
6	RxD (RS232)
7	Data+ (TTY passive)
8	Data- (TTY passive)
9	* n.c.

* Pins 5 and 9 must be bridged for TTY interface.

BCD Switch

BCD Switch	Address
1	10^0
2	10^1

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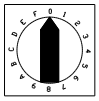
Hex Switch



Hex Switch	Function
0	1200 baud, parity odd
1	2400 baud, parity odd
2	4800 baud, parity odd
3	9600 baud, parity odd
4	1200 baud, parity even
5	2400 baud, parity even
6	4800 baud, parity even
7	9600 baud, parity even
8	1200 baud, no parity
9	2400 baud, no parity
A	4800 baud, no parity
B	9600 baud, no parity

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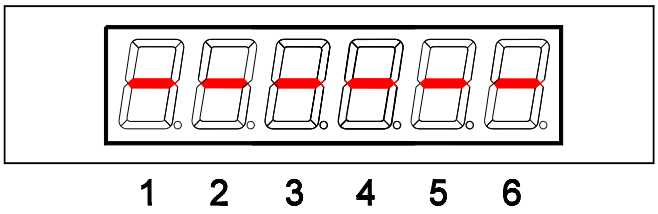
4.1 Display Elements



The digits are designated from left to right, as shown above.

Component	Function / Description
7 Segment Display	
Number of lines:	1
Number of characters:	4 or 6
Character height:	13, 20 or 30 mm
Version:	readable from one side
Display colour:	red or green illuminated

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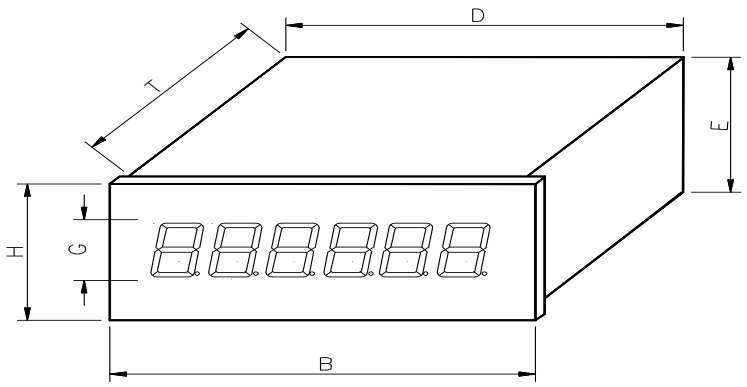
5 Housing Dimensions



Fixed Dimensions

Dimension	T
Measurement	60

Variable Dimensions

Char. Height: G	Digits	B	H	D	E
13	6	96	24	92	20
20	4	96	48	92	44
20	6	144	48	140	44
30	4	144	48	140	44

All dimensions in mm.

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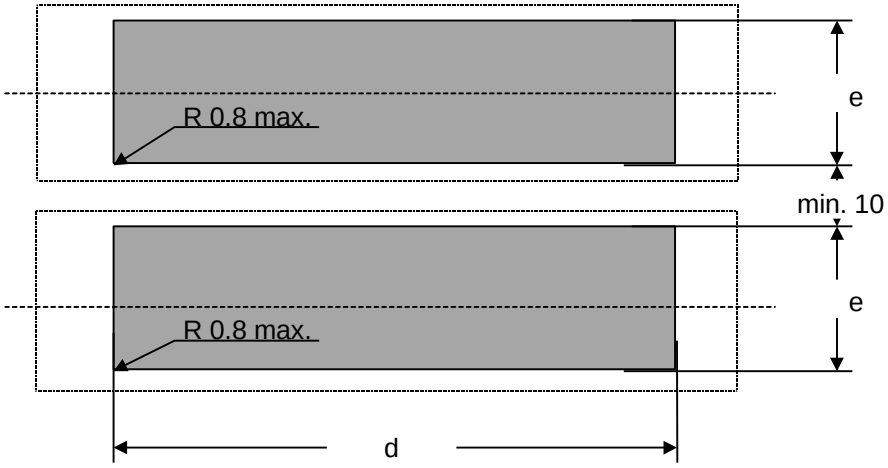
5.1 Panel Cutout



Character Height	Digits	d	e
13	6	$92,5^{+0.8}$	$22.2^{+0.3}$
20	4	$92,5^{+0.8}$	$45^{+0.6}$
20	6	141	$45^{+0.6}$
30	4	141	$45^{+0.6}$

All dimensions in mm.

5.2 Installation / Mounting

The display has been designed for mounting to a panel. The tabs provided to this end are bent up to enable fastening of the clamps after the device has been inserted.

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)
- User's manual for original purchaser.

6.2 Optional Accessories

- User's manual
- Mounting materials (screw clamps M4).

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6.3 Maintenance and Care

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

- 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.

- Observe all of the instructions and requirements which are included in this user's manual.

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6.4 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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6.5 Declaration of Conformity

EU-Konformitätserklärung
EU Declaration of Conformity

Produktbezeichnung: mipan
Product name:

Typenreihe: mipan SI
Type code:

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

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 angewandten Richtlinie(n) wird nachgewiesen durch die Einhaltung folgender Normen / Vorschriften:** *The conformity of the product described above with the provisions of the applied Directive(s) is demonstrated by compliance with the following standards / regulations:*
Richtlinien / *Directives*		**Europäische Norm /** *Standard*
EMV Richtlinie *EMC Directive*	**2014/30/EU**	EN61000-6-2:2005
		EN61000-6-4:2007 +A1:2011
RoHS Richtlinie *RoHS Directive*	**2011/65/EU**	EN50581:2012

Windischeschenbach, 14.12.2017

Manuel Raß

Geschäftsführer / *General Manager*

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6.6 Versions Overview

Version	Date	Comments, Description
1.00	5/27/99	
1.10	12/13/01	Kreuzer: Layout
1.20	12/16/02	Kreuzer: New logo
1.31	8/5/03	Kreuzer: TTY -> TTY passive
1.40	9/12/03	Kreuzer: Error description
1.50	4/29/04	Kreuzer: new designations Rx+, Rx-
1.60	10/13/04	Kreuzer: Panel cutout changed
1.70	08/02/10	Order numbers deleted
1.80	06/08/11	Cover sheet
1.90	03/18/13	Declaration of conformity, warranty / liability changed
2.00	10/22/13	Logo
2.10	4/28/16	Declaration of conformity
2.20	6/30/16	Info to connector (9-pole)
2.30	12/14/17	Change of address

Certified per **DIN EN ISO 9001**.

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