mitex FI PROFIBUS LED 1 x 8

Alphanumeric LED Display with Profibus Interface

User's Manual

FEMA ELECTRÓNICA, S.A.

Distribuidor en España :
FEMA ELECTRONICA, S.A.
Pol.Ind. Santiga Altimira 14 (T14 – N2)
E-08210 Barberà BARCELONA
Tel. 93.729.6004 www.fema.es
Fax 93.729.6003 info@fema.es

Table of Contents

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

1 General

There's no doubt that Profibus is becoming more and more significant with the ever growing number of devices which are equipped with a Profibus interface.

The alphanumeric panel mount LED display with Profibus interface is a high performance product which has been especially designed for industrial use.

The metal housing and rugged design of the alphanumeric panel mount LED display with Profibus interface make it ideal for all types of applications, even under adverse ambient conditions.

1.1 Special Features

The display has been designed for use as a data converter between a Profibus DP master and an 8-digit dot matrix with a resolution of 5 x 7 pixels. It functions as a slave module at the Profibus DP, and allows for the display of data.
Various functions are made available depending upon configuration. For example, display brightness can be adjusted by means of control data, and/or individual characters can be caused to blink independent of one another.

Interface:
- Profibus DP per DIN 19245 part 3

Display:
- Dot matrix with 5 x 7 pixels per digit
- 17 mm (0.67'') or 30 mm (1.18'') characters, 8 digits
- 4 brightness levels
- Blink function for each of the 8 digits, frequency approx. 1 Hz

Power Supply:
- 24 VDC, approx. 250 mA
- Overvoltage protection, protected against pole reversal

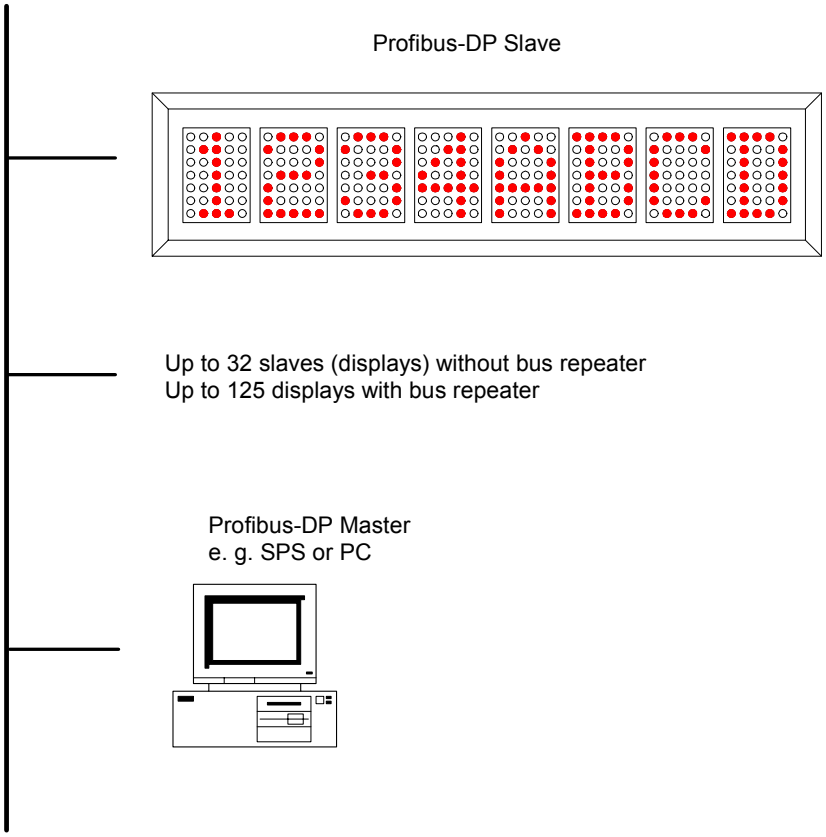
Housing:
- DIN panel-mount housing, metal with special surface finish

Functions:
- 3 operating modes
- Self-test via Profibus DP and DIP switches.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

2 Applications Examples

The display is connected to a Profibus master via the Profibus DP.



microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3 Technical Data

General Specifications

Display type:	LED dot matrix
Character height:	17 mm (0.67''), 30 mm (1.18'')
Digits:	8
Resolution:	5 x 7 pixels per character
Display colour:	red, green
Operating voltage:	24 VDC +/- 20%
Power consumption:	approx. 250 mA
Interface:	Profibus DP
Baud rate:	9.6 to 12.000 kBaud
Display:	ASCII code
Housing:	DIN panel-mount housing, metal with special surface finish
Housing dimensions:	see chapter 5
Mounting:	screw clamps
Protection:	front panel: IP54 or IP65
Operating temp.:	0 to + 45 °C
Storage temperature:	- 10 to + 60 °C
Humidity:	45 to 85%

3.1 Operating Modes

Three different operating modes with various functions are available for the display. The operating mode is determined by the transmitted Profibus DP configuration data.

3.2 Operating Mode 1

Two bytes of output data are used in operating mode 1, which are selected with Profibus configuration identifier 0x21. These 2 bytes can be used to transmit a numeric value as a signed integer from the Profibus DP master.

The panel mount display calculates the appropriate decimal value from the transmitted data, which lies within a range of -32768 to 32767. The calculated value is then displayed.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.3 Operating Mode 2

Four bytes of output data are used in operating mode 2, which are selected with Profibus configuration identifiers 0x21 and 0x21.

Brightness and blinking are controlled by the Profibus DP master with these 4 bytes, the software self-test is initialised and a numeric value is transmitted as a signed integer. The panel mount display calculates the appropriate decimal value from the transmitted data, which lies within a range of -32768 to 32767. The calculated value is then displayed.

3.4 Operating Mode 3

Twelve bytes of output data are used in operating mode 3, which are selected with Profibus configuration identifiers 0x21, 0x21 and 0x27. Brightness and blinking are controlled by the Profibus DP master with these 12 bytes, the software self-test is initialised and a display value is transmitted for each of the eight digits.

3.5 Brightness Control

Brightness is controlled via device control data (panel meter), and is only available in operating modes 2 and 3. Four different brightness levels are available including 100%, 80%, 50% and 20%.

3.6 Blink Function

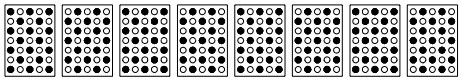
The blink function is controlled via device control data (panel meter), and is only available in operating modes 2 and 3. The characters displayed at each of the eight digits can be caused to blink independent of one another. The blinking frequency is approximately 1 Hz.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.7 Hardware Self-Test

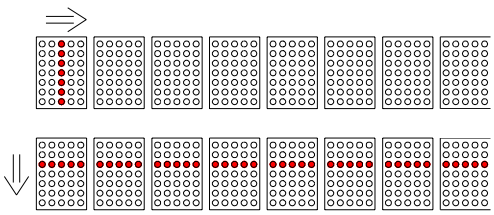
The hardware self-test can be activated with the DIP switches. A checkerboard pattern is displayed during the hardware self-test, which is continuously intensified.

The display blinks at a rate of approx. 1 Hz at full brightness. The DIP switch setting is only read in at reset, and remains active until the next hardware self-test reset.



3.8 Software Self-Test and Start-Up Performance

Sweeping rows are displayed during the software self-test and device start-up:



Overall duration: approx. 15 seconds.

The software self-test is performed automatically each time operating power is switched on, or can be run continuously in operating modes 2 and 3, in which case it is initialised via device control data by setting the corresponding bits at the Profibus DP master.

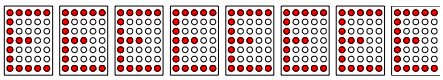
During the software self-test immediately after start-up, the display is illuminated at full brightness (100%). However, the brightness level selected via control data is taken into consideration during the software self-test which is initialised by the Profibus DP master. The blink function is suppressed.

The software self-test is interrupted as soon as Profibus DP data are available.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.9 Monitoring the Profibus DP Interface

The Profibus DP interface is monitored by the panel mount LED display if the watchdog for the slave has been activated by the Profibus DP master. If no Profibus DP connection can be established, or if the connection to the master is interrupted, the following sequence appears at the display.



The status of the Profibus DP interface is also indicated at the LED monitor.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.10 Profibus DP Characteristic Data

ID Number:	0x04AA
Maximum Output Data:	2 bytes DP output data: operating mode 1 4 bytes DP output data: operating mode 2 12 bytes DP output data: operating mode 3
Default Configuration:	0x21, 0x21, 0x27
Parameter Data:	7 bytes, default
User PRM:	none
Diagnosis:	6 bytes, default
External Diagnosis:	none
Transmission Speed:	9.6 kBaud / 19.2 kBaud / 93.75 kBaud / 187.5 kBaud / 500 kBaud / 1.5 MBaud / 3 MBaud / 6 MBaud / 12 MBaud
Protocol:	Profibus DP, DIN 19245, part 3
Device Database File:	MICR04AA.GSD

Configuration of the display is performed with 1, 2 or 3 bytes of configuration data. The display's operating mode is also selected by means of configuration data.

The interface receives and examines the transmitted configuration data, which is not accepted if it does not conform to one of the possibilities shown in the tables below.

If incorrect configuration data are transmitted to the interface as regards number of bytes or identifier, Profibus initialisation is disabled and the slave's parameters must be reconfigured.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.11 Config_Data - Operating Mode 1

2 bytes of DP output data and 0 bytes input data are used in operating mode 1.

Byte No.	Data (Identifier)	Output Data	Function / Description
0	0x21	2	Output data: display data as signed integer

3.12 Config_Data – Operating Mode 2

4 bytes of DP output data and 0 bytes input data are used in operating mode 2.

Byte No.	Data (Identifier)	Output Data	Function / Description
0	0x21	2	Output data: device control data
1	0x21	2	Output data: display data as signed integer

3.13 Config_Data – Operating Mode 3

12 bytes of DP output data and 0 bytes input data are used for operating mode 3.

Byte No.	Data (Identifier)	Output Data	Function / Description
0	0x21	2	Output data: global control data (reserved)
1	0x21	2	Output data: device control data
2	0x27	8	Output data: display data as display value

3.14 User Parameter Data - User_Prm_Data

The user parameter data are not used by the display. However, a test is run to determine if user parameter data have been configured by the Profibus master. If parameter data have been configured, Profibus initialisation is disabled and the slave's parameters must be reconfigured.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.15 Output_Data – Operating Mode 1

2 bytes of output data are used in operating mode 1. The individual data bytes are assigned to the following functions:

Byte No.	Designation	Length in Bytes	Function / Description
0 - 1	Data	2	Display data as signed integer

The numeric value to be displayed is transmitted as a signed integer via 2 bytes of output data. It is displayed at full brightness without blinking.

Display Value Coding:

Output_Data		Display							
Byte 0 (HEX)	Byte 1 (HEX)								
00	00								**0**
00	01								**1**
00	02								**2**
00	03								**3**
↓	↓								
7F	FD				**3**	**2**	**7**	**6**	**5**
7F	FE				**3**	**2**	**7**	**6**	**6**
7F	FF				**3**	**2**	**7**	**6**	**7**
80	00	**-**			**3**	**2**	**7**	**6**	**8**
80	01	**-**			**3**	**2**	**7**	**6**	**7**
80	02	**-**			**3**	**2**	**7**	**6**	**6**
↓	↓								
FF	FD	**-**							**3**
FF	FE	**-**							**2**
FF	FF	**-**							**1**

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.16 Output_Data – Operating Mode 2

4 bytes of output data are used in operating mode 2. The individual data bytes are assigned to the following functions:

Byte No.	Designation	Length in Bytes	Function / Description
0 - 1	Strb	2	Device control data
2 - 3	Data	2	Display data as signed integer

Device control data are transmitted as bytes 0 and 1 of the output data from the DP master to the display, and are used to control display brightness and blinking of individual digits, as well as triggering of the self-test.

Device Control Data Assignments				
Byte No.	Designation	Bit No.	Function / Description	
0	Strb	0 - 1	Brightness control	00_B = 100% brightness 01_B = 80% brightness 10_B = 50% brightness 11_B = 20% brightness
		2	Software self-test	0_B = OFF, 1_B = ON
		3 - 7	no function	
1	Strb	0	Digit 1 blinks	0_B = OFF, 1_B = ON
		1	Digit 2 blinks	0_B = OFF, 1_B = ON
		2	Digit 3 blinks	0_B = OFF, 1_B = ON
		3	Digit 4 blinks	0_B = OFF, 1_B = ON
		4	Digit 5 blinks	0_B = OFF, 1_B = ON
		5	Digit 6 blinks	0_B = OFF, 1_B = ON
		6	Digit 7 blinks	0_B = OFF, 1_B = ON
		7	Digit 8 blinks	0_B = OFF, 1_B = ON

Display value coding is identical to operating mode 1.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3.17 Output_Data – Operating Mode 3

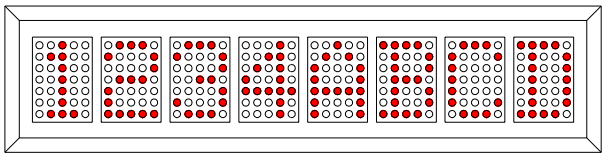
12 bytes of output data are used in operating mode 3. The individual data bytes are assigned to the following functions:

Byte No.	Designation	Length in Bytes	Function / Description
0 - 1	Header	2	Global control data (reserved)
2 - 3	Strb	2	Device control data
4 - 11	Data	8	Display data (coded)

Global Control Data – Operating Mode 3.

These two bytes are reserved and must be set to zero by the user.

Display Data - Operating Mode 3



Digit:	8	7	6	5	4	3	2	1
Output_Data:Byte No.:	4	5	6	7	8	9	10	11

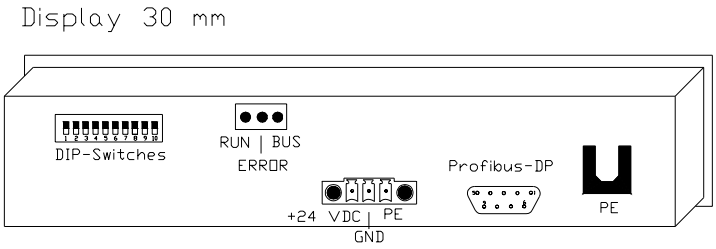
See appendix for list of displayable characters.

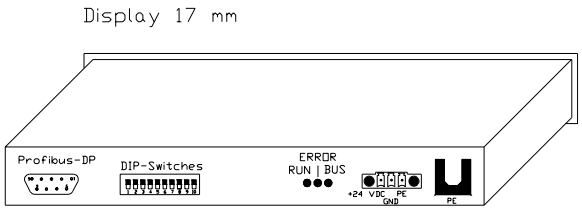
Device control data are forwarded to the display via the output data in bytes 2 and 3 from the DP master and allow for the control of brightness, blinking at the individual digits and triggering of a self-test.

Assignments are the same as for operating mode 2, although the byte numbers are allocated differently. Byte no. 0 corresponds to byte no. 2, and byte no 1 corresponds to byte no 3.

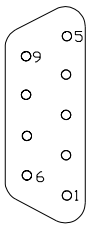
microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

4 Connector Pin Assignments





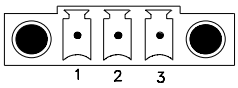
9-Pin Sub-Miniature Plug Connector



Pin	Profibus DP
1	Shield
2	n.c.
3	B strand
4	RTS-Signal
5	GND
6	+ 5 VDC
7	n.c.
8	A strand
9	n.c.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

3-Pole Terminal Block



Pin	Power Supply
1	+ 24 VDC
2	GND
3	PE

LED Monitor

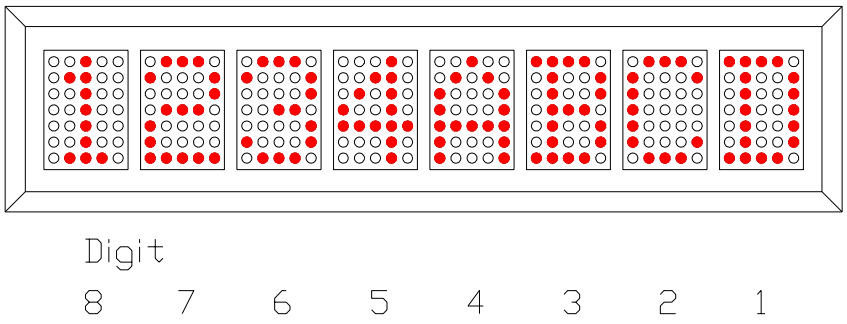
LED	Function	
Run LED (1)	Start-Up: Normal Operation: Error:	off blinks at approx. 1 Hz lit continuously, off
Error LED (2)	Start-Up: Normal Operation: Error:	off off blinks
Bus LED (3)	Start-Up: Normal Operation: Profibus DP active Profibus DP inactive	off on off

10-Fold DIP Switch Array

DIP Switch	Profibus DP Address / Operating Mode		
Profibus-DP-Adr.		**ON**	**OFF**
DIP 1	ID No.: 2^0	1_D	0
DIP 2	ID No.: 2^1	2_D	0
DIP 3	ID No.: 2^2	4_D	0
DIP 4	ID-No.: 2^3	8_D	0
DIP 5	ID-No.: 2^4	16_D	0
DIP 6	ID-No.: 2^5	32_D	0
DIP 7	ID-No.: 2^6	64_D	0
Operating Mode		**ON**	**OFF**
DIP 8	Normal Operation / Self-Test	Self-Test	Normal Operation
DIP 9	Bus Terminator	Active	
DIP 10	Bus Terminator	Active	

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

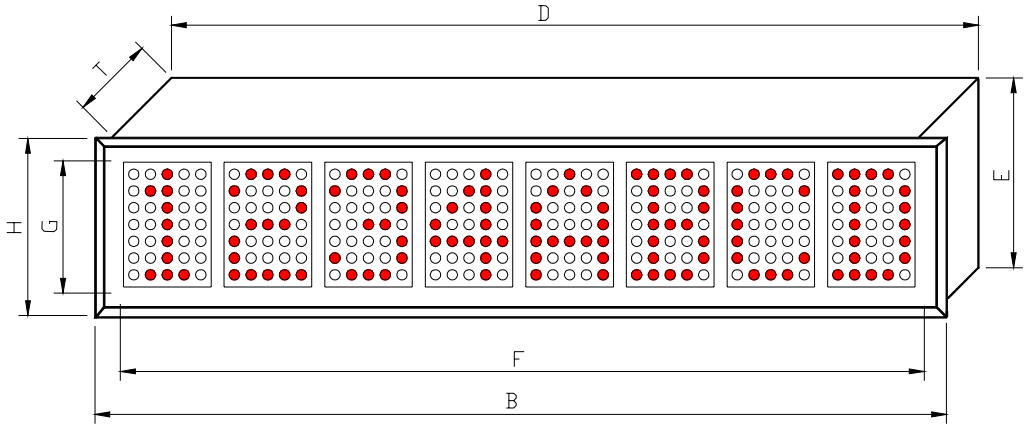
4.1 Display Elements



Component	Function / Description
Display:	5 x 7 dot matrix display
Character Height:	30 mm (1.18”), 17 mm (0.67”)
Number of Lines:	1
Digits:	8
Display Colour:	red, green, 4 brightness levels
Display:	ASCII character set

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

5 Housing Dimensions



Measures in mm

Char. Height G	F	B	H	D	E	T
17	138	168	24	164	20	61
30	222	264	48	254	40	40

Measures in inches

Char. Height G	F	B	H	D	E	T
0.67	5.43	6.61	0.94	6.46	0.79	2.40
1.18	8.74	10.39	1.89	10	1.57	1.57

Panel Cutout:
Allowances added to housing dimensions:

Measures in mm

Char. Height G	D	E
17	165 + 1	21 + 0.3
30	255 + 1	41 + 0.6

Measures in inches

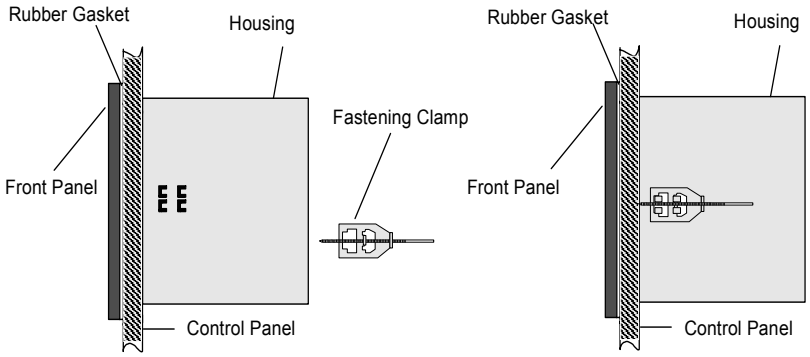
Char. Height G	D	E
0.67	6.50 + 0.04	0.83 + 0.01
1.18	10.04 + 0.04	1.61 + 0.02

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

5.1 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).



microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6 Appendix

6.1 Standard Equipment

- Display with current software and hardware versions
- Mounting materials (screw clamps M4)
- Mating plug for power supply
- User's manual
- Floppy disk with device database file for original owner.

6.2 Optional Accessories

- User's manual, A4 format, German or English
- Mounting materials (screw clamps M2,5)
- Mating plug for power supply.

6.3 Order Numbers

Designation	Order Number
mitex FI DP LED 1x8 17 mm (red)	KPB1LE2-JA121763-000
mitex FI DP LED 1x8 30 mm (red)	KPB1LE2-MA121863-000
User’s manual (A4 format, German)	X-M31-2LE13X-001
User’s manual (A4 format, English)	X-M32-2LE13X-001
Mounting materials screw clamps M2,5	G-S-023
3-pole socket connector	M-B-B-E-3-003

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6.4 Displayable Characters

		00 00	00 01	00 10	00 11	01 00	01 01	01 10	01 11	10 00	10 01	10 10	10 11	11 00	11 01	11 10	11 01
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0				0	@	P	`	p	Λ	Σ		ϕ	À	Ð	à	ð
0001	1			!	1	A	Q	a	q	′	Ω	í	¥	Á	Ñ	ß	ñ
0010	2			“	2	B	R	b	r	*f*	≡	¶		Â	Ò	â	ò
0011	3			#	3	C	S	c	s	⌈	X	£	W	Â	Ó	ã	ó
0100	4			$	4	D	T	d	t	⌊	Ψ	¤		Ä	Ô	ä	ô
0101	5		§	%	5	E	U	e	u	α	°	¥	b	Å	Õ	å	õ
0110	6			&	6	F	V	f	v	⌈		:	b|	Æ	Ö	æ	ö
0111	7			‘	7	G	W	g	w	δ	E	§	b	Ç	×	ç	^
1000	8			(	8	H	X	h	x	ε	=	d		È	Ø	è	ø
1001	9			)	9	I	Y	i	y	η	=	ç		É	Ù	é	ù
1010	A			*	:	J	Z	j	z	Ξ	≠	Î		Ê	Ú	ê	ú
1011	B			+	;	K	[	k	{	λ	⌈	ȝ	>	Ë	Û	ë	û
1100	C			,	<	L	\	l	|	Π	a			Ì	Ü	ì	ü
1101	D			-	=	M	]	m	}	τ	Δ		²	Í	Ý	í	ý
1110	E			.	>	N	^	n	~	Φ	∞		▓	Î	Þ	î	þ
1111	F			/	?	O	_	o		ω	▓	n	¿	Ï	ß	ï	ÿ

6.5 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, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6.6 Troubleshooting

Problem	Cause	Remedy
LED Monitor: Run LED doesn't blink after power-up	No supply power, incorrect supply power	Connect correct supply power
LED Monitor: Error LED blinks	RAM test error or internal error	Switch power off and then back on, if error persists return device for repair
LED Monitor: Error LED is illuminated	Address set to a value less than 127	Change the address and perform a reset

Problems with the Display

Problem	Cause	Remedy
All display segments blink	Hardware test is activated	Set DIP switch to normal operation
Display is barely legible	Incorrect brightness setting	Select new brightness setting via Profibus DP
Display shows only "E"s	No Profibus DP communications	Check Profibus

Problems with the Profibus DP

Problem	Cause	Remedy
Interface cannot be addressed	Profibus pin assignments: Incorrect wiring (A and B strands reversed)	Wire correctly
	No bus terminator, incorrectly configured bus terminator	Terminate correctly
	Incorrect configuration and/or parameter data	Correct configuration and/or parameter data

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6.7 Guarantee

The display is guaranteed for the duration of the legally specified period against defects which existed at the time the device was delivered to the buyer.

The device is subject to technical change without notice. Errors and omissions are excepted. No claims can be honoured for the shipment of a new product. The buyer is required to make notification of defects within 2 weeks after identification of such. Non-observance of notification requirements is equated with acceptance of the defect.

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 all required and/or useful information regarding defects at no charge, as well as to the affected devices, 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” regarding manufactured products and services rendered for the electrical industry apply as well.

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6.8 Declaration of Conformity

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, 92637 Weiden, Germany

does hereby declare that the product described in this user's manual,

“mitex FI”

to which this declaration makes due reference,
is in compliance with the following standards or normative documents:

Interference emission: generic standard EN 50081 - 1, issued July 1993
Product standard: EN 55011; group 1/2; class A, issued March 1991
Limit values identical to EN 55022

Interference immunity: generic standard EN 50082 - 2, issued March 1995

Basic specification per table

In accordance with regulations specified by guideline 89/336/ EWG (and EMVG).

Weiden, 16 June 1999 microSYST Systemelectronic GmbH

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de

6.9 Versions Overview

Ver.	Date	Comments, Description
1.00	6/16/99	
1.10	12/13/01	Kreuzer: Layout
1.20	12/16/02	Kreuzer: New logo

microSYST Systemelectronic GmbH, Zur Centralwerkstätte 10, D-92637 Weiden, Germany
Tel. (+49-961) 3 91 66-0, Fax (+49-961) 3 91 66-10, www.microsyst.de, info@microsyst.de