Remote alarm indicator and test combination MK800

Remote alarm indicator and test combination for BENDER monitoring systems with BMS bus capability

MK800-… with surface-mounting enclosure

Device features

- Display of operating status and alarm messages from BENDER monitoring systems
- Backlit clear LC text display (4 x 20 characters, 8 mm)
- Additional text to be displayed, if required.
- Three LEDs, yellow, red and green, to distinguish different alarm messages
- 80 predefined standard texts in 20 languages
- 1000 freely programmable message texts
- Easy parameter setting with PC (USB interface) or menu
- Memory with real-time clock to store 1000 alarm messages with date and time stamp
- 16 digital inputs (option)
- 1 programmable relay (option)
- Five large function keys
- Versions available for flush and surface mounting as well as for mounting into cavity walls or for door mounting
- Non-reflecting, multicoloured foil
- Smooth surfaces without openings for easy cleaning

Product description

The universal MK800 remote alarm indicator and test combination is used for

- indication and visualization of operating status and alarm messages;
- central operation and parameter setting of BMS bus devices;
- indication and visualization of operating status and alarm messages;
- displaying measured values and setting of response values for monitoring purposes

from BENDER monitoring systems with BMS-bus capability, such as MEDICS, RCMS or EDS. The MK800 is available for flush and surface mounting. The flush-mounting version is suitable for cavity wall or door mounting. The appropriate cover frames are available in different colours.

Function

On its backlit display, the MK800 displays messages from all BMS-bus devices assigned via alarm addresses. As well as being used as a standalone indicator, the MK800 also supports parallel indication. In the event of an alarm message, the yellow "WARNING“ LED or the red "ALARM" LED lights up and the message appears on the LC display in plain text format. At the touch of the " ⎙“ button, three additional text lines can be displayed to each alarm message (for example, instructions what to do). At the same time, there is an audible signal the frequency and interval of which can be set accordingly to distinguish different alarms. The audible alarm is acknowledgeable and sounds again once a configurable period of time has elapsed. If a second message is received whilst the first is still pending, the audible signal will sound again and the messages will flash up alternately on the LC display.

The MK800 provides a test button to check the operation of an assigned A-ISOMETER® 107TD47 or IRDH. The test is carried out sequentially and evaluated automatically. A message is only indicated on the MK800 the test button of which was pressed - in this way other areas will not be disturbed.

The MK800 can be used as a master device in all BMS systems.

Display/ operating elements

The MK800 backlit LC text display features four lines of 20 characters (8 mm high). It supplies medical and technical personnel with information that is always clear and unambiguous, in order to help them to make decisions. Every alarm message comprises three lines which appear spontaneously and three additional lines which can be displayed at the touch of a button. This additional text provides further information, e.g. instructions what to do in this case of fault. The fourth line contains status information, such as number of messages, test procedures or menu information.

Three LEDs in different colours are located below the text display which allow to distinguish between warning and alarm messages.

Five illuminated large keys are available for operating the MK800. These keys provide the following functions:

- Acknowledgement of acoustic alarms
- Function test of assigned ISOMETER®
- Lamp test
- Scrolling alarm textes and messages
- MK800 parameter setting

Parameter setting

The memory of the MK800 provides 80 predefined alarm texts in 20 languages, therefore the parameters can be set easily via the function keys of the MK800. That means, a PC is not required for commissioning.

The intuitive, user-friendly TMK-Set PC software also allows individual texts to be programmed and assigned to 1000 individual messages via USB interface or the external BMS bus. A warning or alarm LED as well as an acoustic signal can be assigned to each message.

History memory

Warning and alarm messages with date and time stamp are automatically stored in the memory as well as analogue values with maximum and minimum values. This guarantees reproducibility at all times. Up to 1000 messages are stored. The data of the history memory can be displayed directly on the MK800.

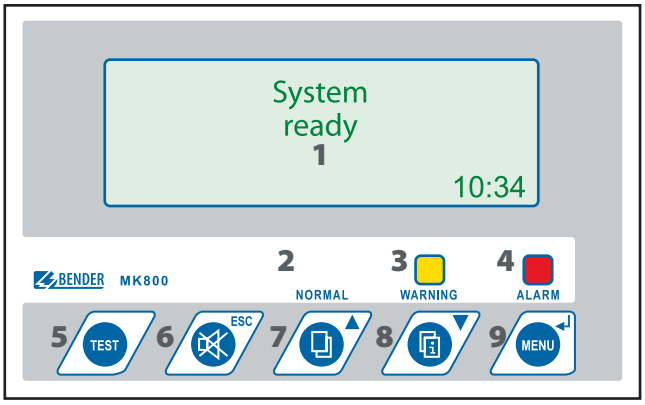
The history memory can be read out via the TMK-History software which also provides clear data analysis.

Digital inputs/ relay output (option MK800-11)

16 digital inputs are available allowing messages from other technical equipment to be displayed. The digital inputs are designed for voltages of AC/DC 0…30 V, in practice these inputs are controlled by potential-free contacts. The logic of these inputs can be set as required.

For test functions or common alarms, a programmable relay is available.

Operating and display elements



1 - LCD: Display of operating status and alarm messages

2 - LED "NORMAL“: Normal operating mode

3 - LED "WARNING“: Warning messages

4 - LED "ALARM“: Alarm messages

5 - Test button "TEST": To activate the test for connected and assigned insulation monitoring devices

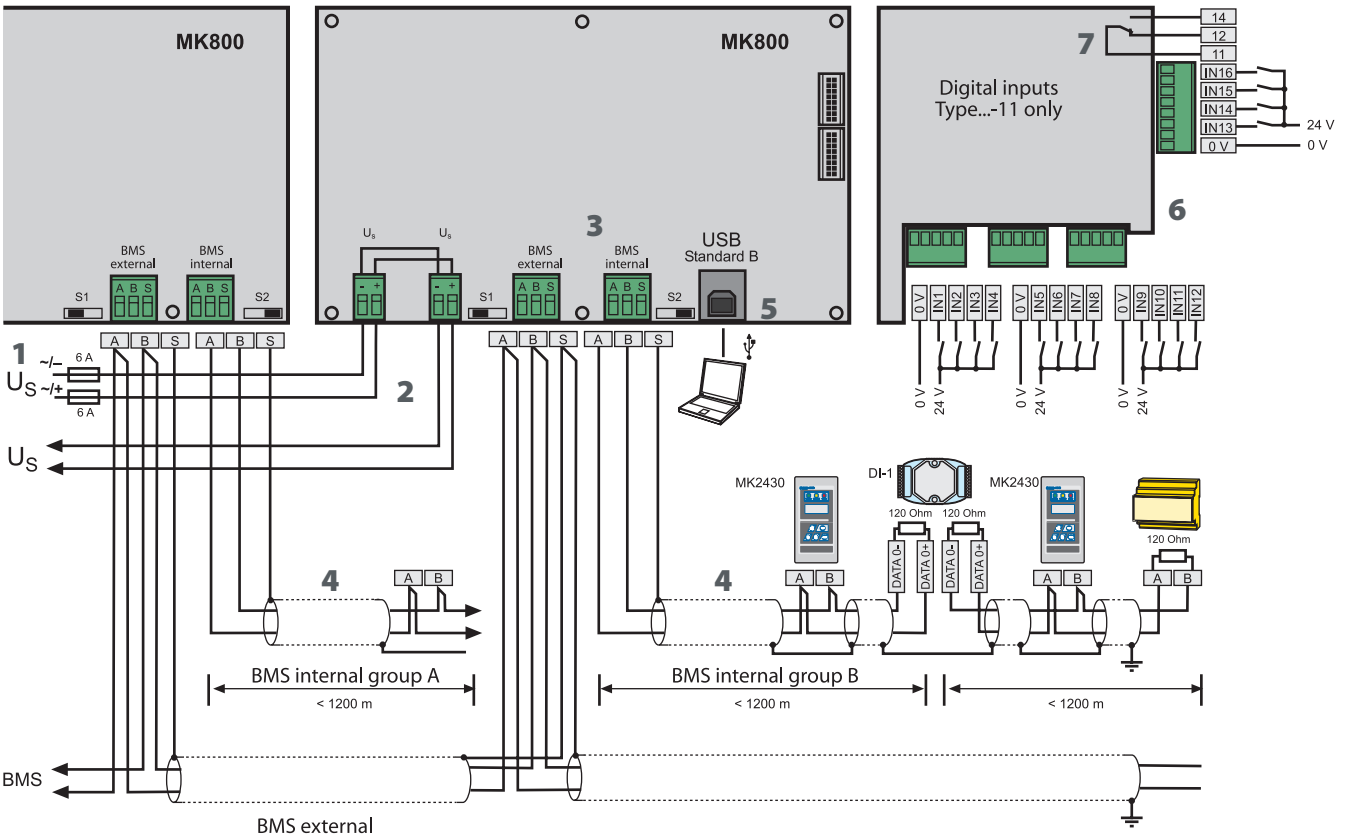
6 - Buzzer mute:
In operating mode: to mute the buzzer.
In menu mode: Esc function

7 - Scroll key: In operating mode: to scroll messages.
In menu mode: Up key

8 - "Add. text" key: In operating mode: additional text.
In menu mode: Down key

9 - "MENU" key: In operating mode: to call up the menu mode.
In menu mode: Enter function.

Wiring diagram



1 - Supply voltage U_S

2 - Looped through connection for supply voltage (e.g. for control voltage, relay contacts)

3 - Switches S1, S2 for BMS bus termination (terminating resistor 120 Ω)

4 - Wiring between the MK800 and devices with BMS-bus capability.

5 - USB connection for programming

6 - Digital inputs
The digital inputs either have to be activated via potential free contacts or via voltage signals.

When the inputs are activated via an external voltage, the common 0(-) is connected to terminal 0 and the 1(+)-signal is connected to the respective input IN1…IN16.

7 - Programmable contact for device errors, ISOMETER® test, device failure, common alarm message

1.8.4

Technical data alarm indicator and test combination MK800

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	4 kV/3

Supply voltage

Supply voltage U_S	AC / DC 24 V
Frequency range U_S	0/40…60 Hz
Operating range U_S	AC 18…28/DC 18…30 V
Power consumption	≤ 5 VA

Displays and LEDs

Display, characters four lines,	4 x 20 characters
Standard message texts in	20 languages
Alarm addresses	< 150
Programmable text messages	1000
History memory (messages)	1000
Standard text message	3 x 20 characters
Additional text message (accessed via key)	3 x 20 characters
Alarm LEDs (three different colours)	NORMAL (green) WARNING (yellow) ALARM (red)
Menu texts	German/ English
Keys	5 (Isometer test, buzzer mute, additional text, scroll, menu)

Buzzer

Buzzer message	can be acknowledged, adoption of characteristics of new values
Buzzer interval	configurable
Buzzer frequency	configurable
Buzzer repetition	configurable

Inputs (option) (MK800-11 only)

Digital inputs	16 (IN1…IN16)
Galvanically isolated	
Control of digital inputs via voltage-free contacts/ extraneous voltage	
Operating principle N/O or N/C operation / Off	can be selected for each input
Factory setting	Off
Voltage range	(high) AC / DC 10…30 V
Voltage range	(low) AC / DC 0…5 V

Interface internal/external

Interface/protocol	2 x RS-485/BMS
Baud rate internal/external (default setting)	9.6 kBit/s/57.6 kbit/s
Cable length	≤1200 m
Recommended cable (shielded, shield connected to PE on one side)	J-Y(ST)Y min. 2 x 0.6
Terminating resistor	120 Ω (0.25 W) can be connected via DIP
Device address, BMS bus internal/external	1…150/1…99
Factory setting device address internal/external	1 (master)/1 (master)

Programming

Interfaces	USB
Software TMK-Set	V 3.0 and higher
Factory setting password query	activated

Cable length when the power supply for the MK800 is taken from AN450

0.28 mm²	50 m
0.5 mm²	90 m
0.75 mm²	150 m
1.5 mm²	250 m
2.5 mm²	400 m

Colours

Front foil	RAL 7035 (light grey) / RAL 7012 (basalt grey)
Marking keys	RAL 5002 (ultramarine blue): RAL 7035 (light grey)
Front plate	RAL 7035 (light grey)

Switching elements

Number	1 (MK800-11 only)		
Operating principle	N/C or N/O operation (programmable)		
Electrical service life, number of cycles	10.000		
Contact data acc. to IEC 60947-5-1			
Utilization category	AC-13	AC-14	DC-12
Rated operational voltage	24 V	24 V	24 V
Rated operational current	5 A	3 A	1 A
Minimum contact load	1 mA at AC / DC > 10 V		

General data

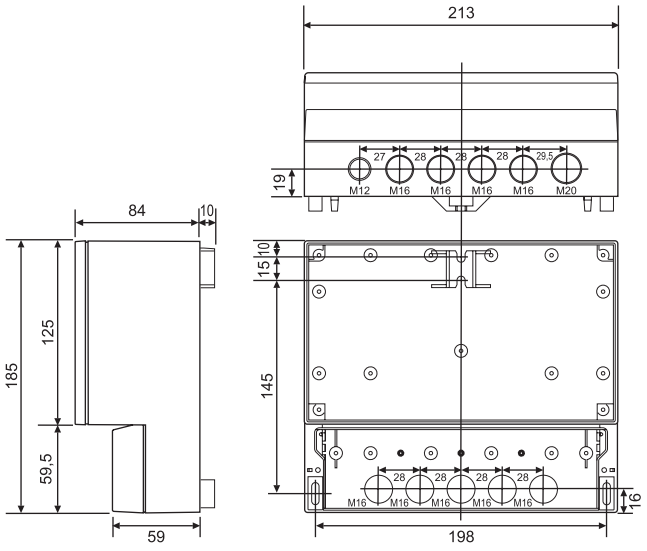
EMC immunity	acc. to EN 61000-6-2
EMC emission	acc. to EN 61000-6-4
Operating temperature	- 5…+ 55 °C
Classification of climatic conditions acc. to IEC 60721	
Stationary use	3K5
Transport	2K3
Storage	1K4
Classification of mechanical conditions acc. to IEC 60721	
Stationary use	3M4
Transport	2M2
Storage	1M3
Operating mode	continuous operation
Mounting	any position
Connection	plug-in terminals
Connection properties (supply voltage, BMS bus)	
rigid / flexible / conductor sizes	0.2…2.5/0.2…2.5 mm²/AWG 24-12
flexible with ferrule without/with plastic sleeve	0.25…2.5/0.25…2.5 mm²
Connection properties (inputs)	
rigid / flexible / conductor sizes	0.08…1.5/0.08…1.5 mm²/AWG 28-16
flexible with ferrule without / with plastic sleeve	0.25…1.5/0.25…0.5 mm²
Stripping length	7 mm
Tightening torque	0.5…0.6 Nm
Degree of protection, internal components (DIN EN 60529)	IP50
Degree of protection, terminals (IEC 60529)	IP20
Flammability class	UL94V-0
Product standards	IEC 60364-7-710
Operating manual	TGH1408
Weight	
Flush-mounting (MK800)	< 950 g
Surface mounting (MK800A)	< 880 g
Surface mounting (MK800AF)	< 1150 g

Ordering information

Type	Digital inputs	Enclosure	Art. No.
MK800-11	16	Flush-mounting	B 9510 0100
MK800-12	--	Flush-mounting	B 9510 0101
MK800A-11	16	Surface mounting	B 9510 0102
MK800A-12	--	Surface mounting	B 9510 0103
MK800AF-11	16	Surface mounting, front door	B 9510 0104
MK800AF-12	--	Surface mounting, front door	B 9510 0105
MK800E-11	16	Built-in type without enclosure	B 9510 0106
MK800E-12	--	Built-in type without enclosure	B 9510 0107
UP800	--	Flush-mounting for MK800	B 9510 0110
BR800-1	--	Bezel frame silver for MK800	B 9510 0111
BR800-2	--	Bezel frame white for MK800	B 9510 0112
TMK-Set V3.xx	software	as download or CD	B 9602 0087

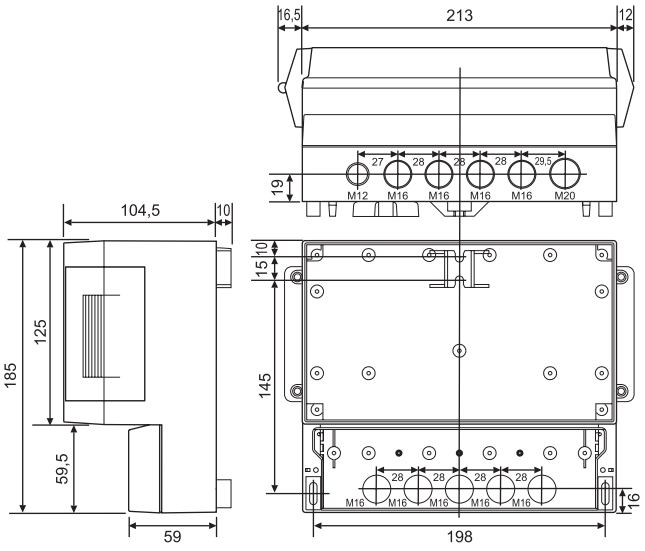
Dimension diagram MK800A-11/MK800A-12, surface-mounting type

Dimensions are given in mm



Dimension diagram MK800AF-11/MK800AF-12, surface-mounting type, front door

Dimensions are given in mm



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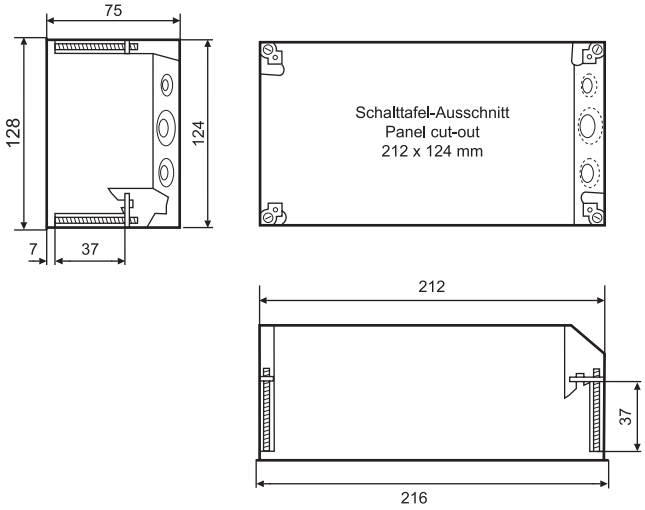
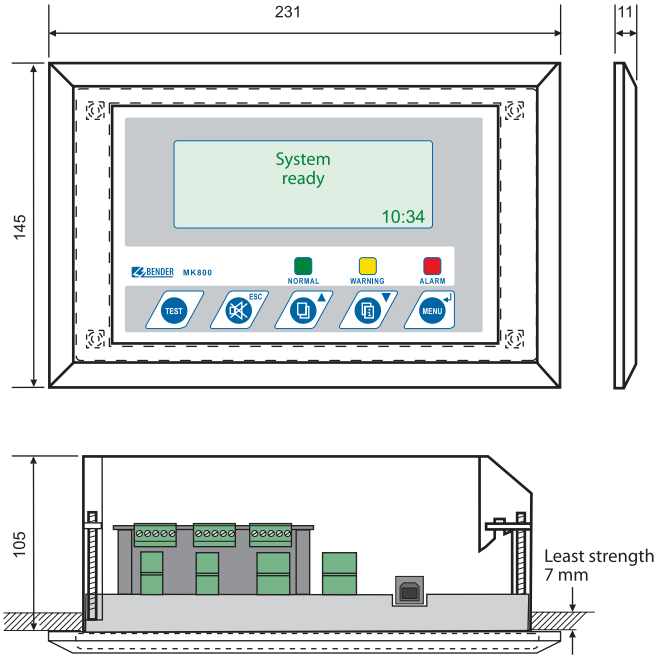
Dimension diagram flush-mounting enclosure UP800

Dimensions are given in mm



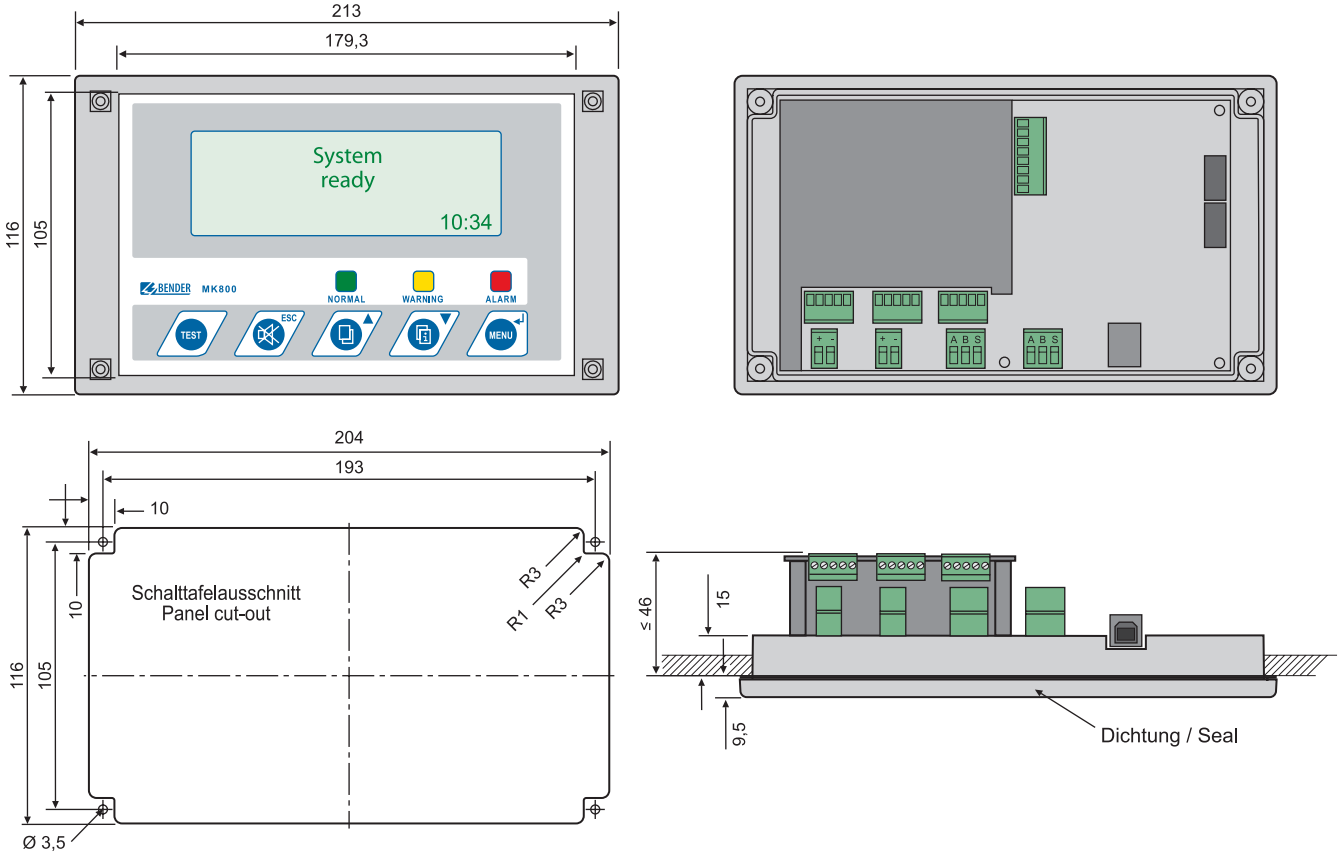
Dimension diagram MK800-11/MK800-12 with bezel frame BR800 and flush-mounting enclosure UP800, example: cavity wall mounting

Dimensions are given in mm



Dimension diagram MK800-11/MK800-12, example: door mounting

Dimensions are given in mm



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