COMTRAXX® MK800

Alarm indicator and test combination with LCD

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Device features

- Display of operating status, warning 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
- A set of LEDs, red, yellow and green, allowing warning and alarm messages to be indicated in an order of priority
- Predefined standard texts in 21 languages
- 1000 freely programmable message texts
- Easy parameter setting with PC (USB interface) or menu
- Memory with real-time clock to store 1000 warning and alarm messages with date and time stamp
- 16 digital inputs (option)
- One programmable relay (option)
- Five large function buttons
- 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 to meet the hygiene requirements for medical locations

Approvals

Product description

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

- indication and visualisation of operating status and alarm messages
- central operation and parameter setting of BMS bus devices
- indication and visualisation 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. An additional text button allows three additional text lines to 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 ISOMETER® 107TD47 or IRDH. The test is carried out sequentially and evaluated automatically. A message is indicated only on that 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 buttons are available for operating the MK800. These buttons provide the following functions:

- Acknowledgement of acoustic alarms
- Functional 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 parameters can easily be set via the function buttons of the MK800. That means, a personal computer 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)

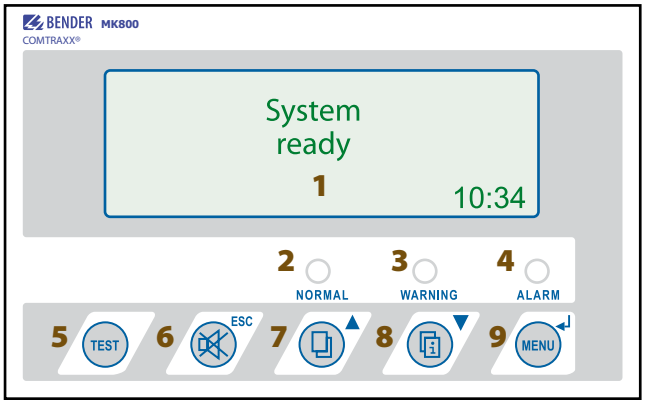
16 digital inputs are available allowing messages from third-party systems to be displayed. The digital inputs are designed for voltages of AC/DC 0…30 V, in practice these inputs are controlled by potential-free contacts. The logic of these inputs can be set as required.

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

Standards

The MK800 alarm indicator and test combination meets the requirements for installation: IEC 60364-7-710.

Operating and display elements



1 - LCD: Display of operating status, warning and alarm messages as well as menu functions

2 - LED “NORMAL”: Power On indicator, green (only lights up if no warnings or alarms are pending)

3 - LED “WARNING”: warning messages, yellow

4 - LED “ALARM”: alarm messages, red

5 - Test button “TEST”:
to activate the test for connected and assigned insulation monitoring devices

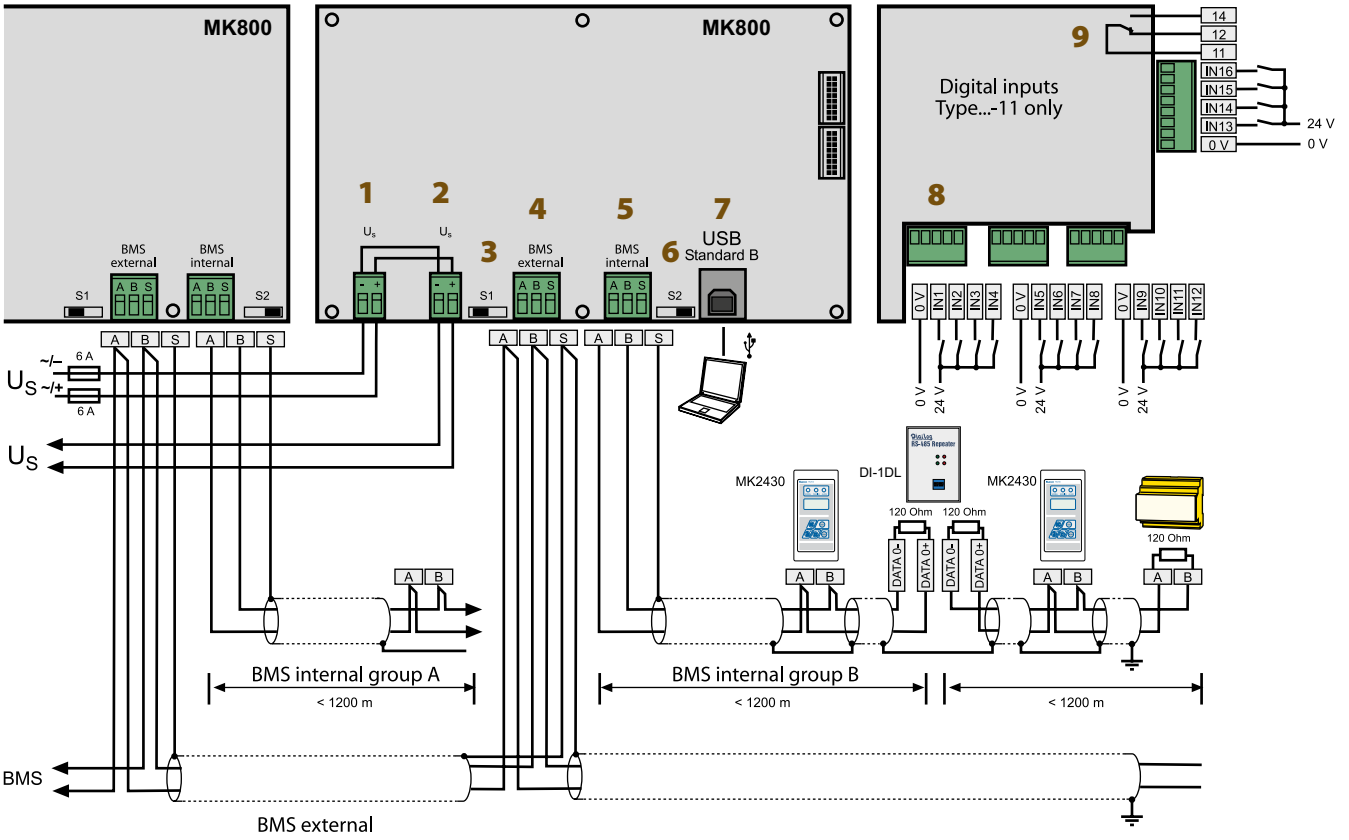
6 - “Mute” button:
in operating mode: to mute the buzzer.
In menu mode: ESC function

7 - “Scroll” button:
In operating mode: to scroll messages.
In menu mode: up

8 - “Add. text” button:
In operating mode: additional text.
In menu mode: down

9 - “MENU” button:
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 - Switch S1 to terminate the external BMS bus. If two or more devices are connected to each other via the BMS bus, the bus line must be terminated at both ends with a resistor (R = 120 Ω).

4 - External BMS bus connection. The external BMS bus is primarily used for the connection of several MK800 or TM800. SMI472-12 signal converters can also be connected.

5 - Internal BMS bus connection. Various Bender devices with a BMS bus interface can be connected to the BMS bus. These may include: Insulation monitoring devices 107TD47, control devices PRC487, residual current monitors RCMS470 and many more.

6 - Switch S2 to terminate the internal BMS bus. If two or more devices are connected to each other via the BMS bus, the bus line must be terminated at both ends with a resistor (R = 120 Ω).

7 - USB interface. For PC connection. The TMK-SET PC software is used to program the MK800. You can use the PC software TMK-HISTORY to read out the MK800 history memory.

8 - MK800-11 only: Digital inputs. The digital inputs can be controlled by an internal or external voltage and potential-free contacts. If the inputs are controlled via an external voltage, the common 0(-) is applied to terminal “0 V” and the 1(+) signal to the corresponding input IN1…IN16.

9 - MK800-11 only: Relay output. Programmable contact for device errors, test of assigned devices, device failure, common alarm message, buzzer.

Technical data

Insulation coordination according to IEC 60664-1

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

Supply voltage

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

Stored energy time in the event of power system failure

Time, date	> 5 days
Restart in the event of voltage failure for at least	1.5 s

Displays and LEDs

Display, characters	four lines, 4 x 20 characters
Standard message texts in	21 national languages
Alarm addresses, programmable	250
Text messages, programmable	1000
Permissible number of operating messages on the internal BMS bus	176
History memory (messages)	1000
Standard text message	3 x 20 characters
Additional text message (press button to access)	3 x 20 characters
Alarm LEDs (a set of LEDs)	NORMAL (green) WARNING (yellow) ALARM (red)
Menu texts	German/English
Buttons	5 (test of assigned devices, buzzer mute, additional text, scroll, menu)

Buzzer

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

Inputs (MK800…-11 only)

Digital inputs	16 (IN1…IN16)
Galvanic separation	yes
Control of digital inputs	via potential-free contacts/extraneous voltage
Operation mode	N/O, N/C operation, off, selectable for each input
Factory setting	Off
Voltage range (high)	AC/DC 10…30 V
Voltage range (low)	AC/DC 0…2 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
Cable: twisted pair, shield connected to PE on one side	recommended: J-Y(St)Y min. 2 x 0.8
Terminating resistor	120 Ω (0.25 W) can be connected via DIP switch
factory setting	both on „off“ position
Device address, BMS bus external/internal	1…150/1…99
Factory setting device address internal/external	1 (master)/1 (master)

Programming

Interfaces	RS-485 or USB (V2.0/V1.1), USB cable: Type A plug on type B plug
Software	TMK-SET V 4.0 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

Cable length when the power supply for the MK800 is taken from AN410

0.28 mm²	150 m
0.5 mm²	300 m
0.75 mm²	500 m
1.5 mm²	1000 m
2.5 mm²	1600 m

Colours

Front foil	RAL 7035 (light grey) / RAL 7040 (basalt grey)
Marking	RAL 5005 (signal blue)
Front plate	RAL 7035 (light grey)

Switching elements (MK800-11 only)

Number	1 changeover contact		
Function	programmable		
Operation mode	N/C or N/O operation (programmable)		
Electrical service life under rated operating conditions	10,000 switching operations		
Contact data acc. to IEC 60947-5-1:			
Utilisation 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 rating	1 mA at AC/DC > 10 V		

Environment/EMC

EMC immunity	acc. to EN 61000-6-2
EMC emission	acc. to EN 61000-6-3
Ambient temperatures:	
Operating temperature	-5…+55 °C
Transport	-25…+70 °C
Long-term storage	-25…+55 °C
Classification of climatic conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3K5 (no condensation, no formation of ice)
Transport (IEC 60721-3-2)	2K3
Long-term storage (IEC 60721-3-1)	1K4
Classification of mechanical conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Long-term storage (IEC 60721-3-1)	1M3

Option „W“ data different from the standard version

Classification of climatic conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3K5 (condensation and formation of ice is possible)
Classification of mechanical conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3M7

Connection

Connection	pluggable screw 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 ferrules, 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 ferrules, without/with plastic sleeve	0.25…1.5/0.25…0.5 mm2
Stripping length	7 mm
Tightening torque	0.5…0.6 Nm (4.5…5.3 lb-in)

Other

Operation mode	continuous operation
Mounting	display-oriented
Degree of protection, built-in components (DIN EN 60529)	IP50
Degree of protection, terminals (DIN EN 60529)	IP20
Flammability class	UL94 V-0
Weight:	
Flush-mounting/cavity wall (MK800)	≤ 950 g
Surface-mounting (MK800A)	≤ 880 g
Surface-mounting (MK800AF)	≤ 1150 g

Ordering information

Enclosure	Indication	Digital inputs/relay outputs	Type	Art. No.
Flush-mounting enclosure	LCD	16/1	MK800-11	B 9510 0100
	3 LEDs	–	MK800-12	B 9510 0101
Surface mounting	LCD	16/1	MK800A-11	B 9510 0102
	3 LEDs	–	MK800A-12	B 9510 0103
Surface mounting, front door	LCD	16/1	MK800AF-11	B 9510 0104
	3 LEDs	–	MK800AF-12	B 9510 0105
Built-in type without enclosure	LCD	16/1	MK800E-11	B 9510 0106
	3 LEDs	–	MK800E-12	B 9510 0107

Accessories

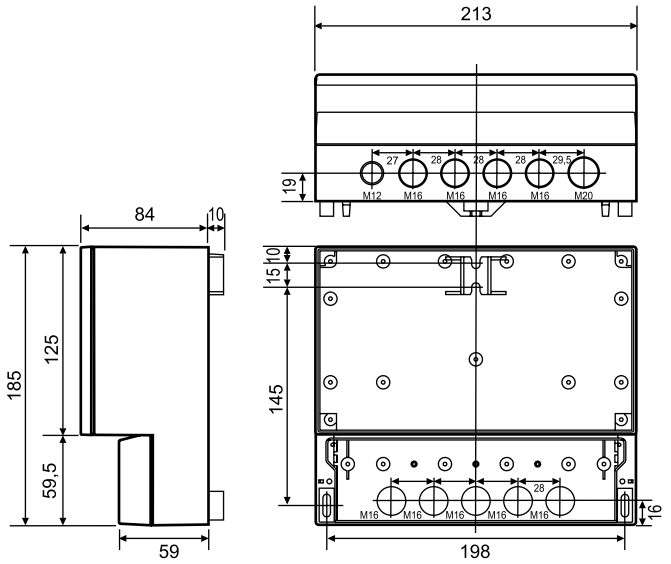
Type designation	Type	Art. No.
Parameterisation software	TMK-SET V3.xx	as Internet download
Flush-mounting enclosure for MK800	UP800	B 9510 0110
Bezel frame silver for MK800	BR800-1	B 9510 0111
Bezel frame white for MK800	BR800-2	B 9510 0112

Suitable system components

Type designation	Type	Art. No.
Power supply unit	AN410	B 924 209
	AN450	B 924 201

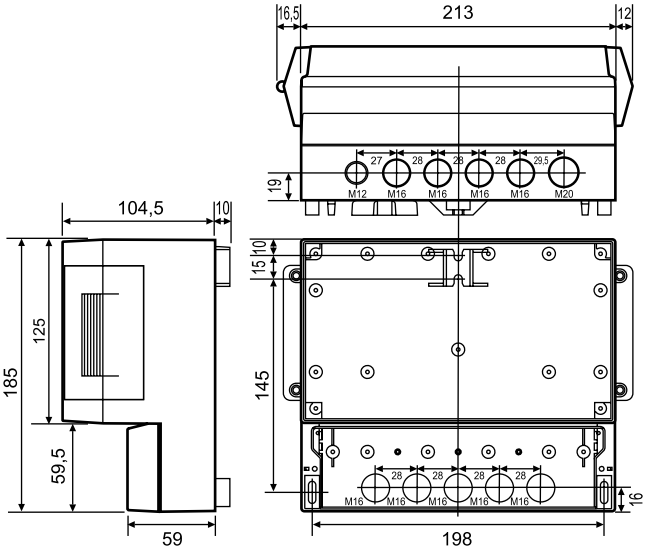
Dimension diagram MK800A-11/MK800A-12, surface mounting enclosure

Dimensions in mm



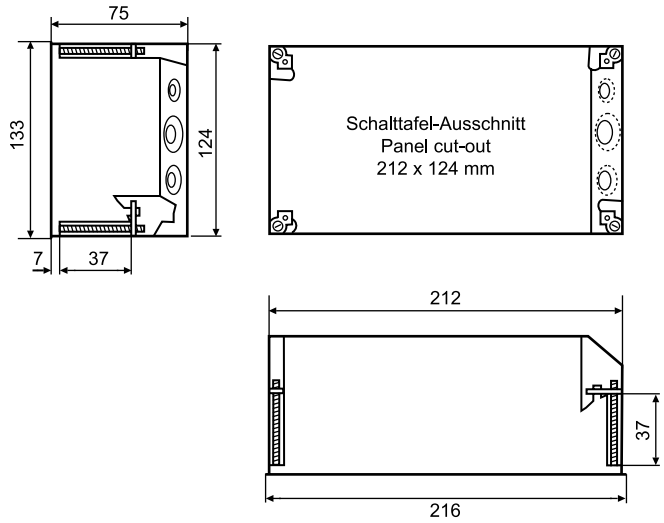
Dimension diagram MK800AF-11/MK800AF-12, surface mounting enclosure with door

Dimensions in mm



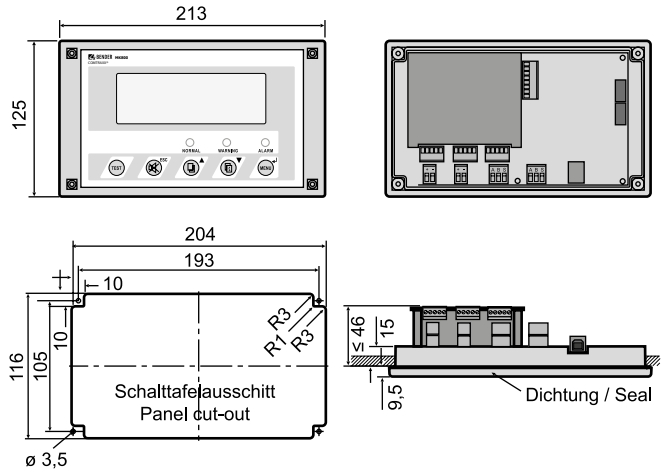
Dimension diagram flush-mounting enclosure UP800

Dimensions in mm



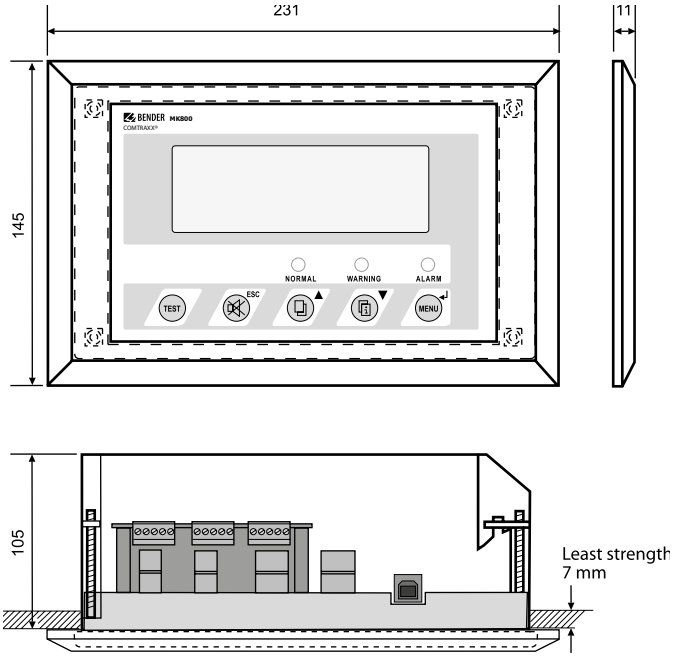
Dimension diagram MK800-11/MK800-12, example: door mounting

Dimensions in mm



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

Dimensions in mm



BENDER
The Power in Electrical Safety©

Bender GmbH & Co. KG
P.O. Box 1161 • 35301 Gruenberg • Germany
Londorfer Strasse 65 • 35305 Gruenberg • Germany
Tel.: +49 6401 807-0 • Fax: +49 6401 807-259
E-Mail: info@bender.de • www.bender.de

BENDER Group