Remote Indicator
for Line Isolation Monitor

BENDER
Medical Products Group

MK2000CBM-G2

MK2000CBM-G2

- LED display for long life
- No interference with medical equipment
- Interfaces with BENDER LIM2000CB
- Uses low voltage wiring (12V DC or 12V AC)
- Mounts to standard electrical 2 gang box
- Connection is by screw terminal strip
- Easy to clean rugged stainless steel and Lexan design

Product Description

The Remote Indicator is used with BENDER Line Isolation Monitor (LIM2000CB) and are mounted in remote locations. A remote indicator duplicates audible and visible alarm indications of the LIM. The remote indicator contains a green “SAFE“ LED, a red “HAZARD“ LED, and a “MUTE“ button with a integral amber LED. The “MUTE“ button is used to silence the remote audible alarm (local muting). Optionally it can be used to silence all audible alarms in the system (system muting). A “TEST“ button can remotely perform a function test of the LIM. The digital display mimics the LIM hazard current display. The digital display consists of two seven segment red LEDs that increase in increments of 0.1mA to a maximum of 9.9mA.

The remote indicator MK2000CBM is supplied as two-gang (G2) stainless steel faceplates for flush mounting into a panel or wall box with a 2" minimum depth. The basic electrical connection is made via five wires. See the wiring diagrams on page 2.

Custom remotes and remote annunciator stations (RAS) are also available. For information see RAS brochure.

Operational Information

The remote indicators are controlled by a 12V DC signal from the LIM. The maximum current consumption is 40mA. A green "SAFE" LED stays illuminated while the system is in safe condition.

When the LIM goes into the alarm condition the hazard line is energized. The green "SAFE" LED extinguishes and the red "HAZARD" LED illuminates when the predetermined limit is exceeded. While in "HAZARD" the audible alarm will sound. When depressed, the “MUTE“ button shall mute the audible alarm signal. Actuation of this button shall cause the integral amber LED to illuminate, indicating that the audible alarm has been silenced. When the leakage current has returned to the acceptable limit level, the alarm indicators shall automatically reset. The “TEST“ button will put the LIM through the test cycle. The button must be held for approximately ten (10) seconds to complete the test.

The load monitoring feature provides the ability to monitor the percentage of load used on the secondary of the isolation transformer. By feeding one leg of the secondary wires from the transformer through a current transformer and setting the LIM to the secondary amperage of the isolation transformer. The LIM calculates the percentage of load being used. When the isolation transformer approaches 80% of rated power, a flashing amber LED illuminates. When 100% of power is achieved, a flashing amber LED illuminates as well as an audible alarm.

Ordering Information

Type	Article No.
MK2000CBM-G2	923545

Technical Data for MK2000CBM-G2

Operating voltage	12V DC or 12V AC
Max. current	40 mA
Operation class	continuous operation
Ambient temperature	
when operating	+32º F to +122º F 0º C to +50º C
when stored	-13º F to +158º F -25º C to +70º C
Connection	screw terminal block
Max. conductor size	16 AWG stranded
Mounting	by screws
Weight	
MK2000CBM-G2	0.32 lb

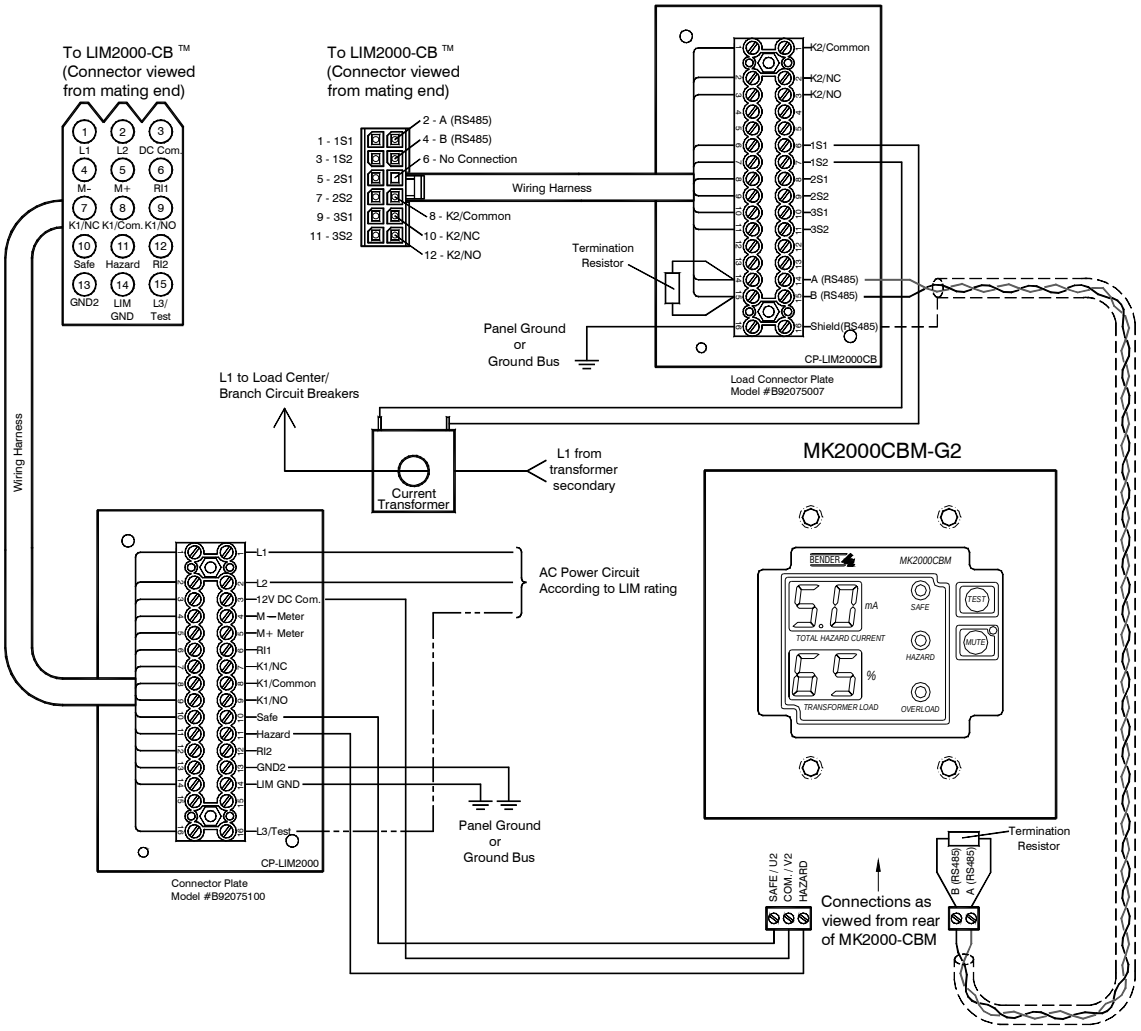
LIM2000plus™ Connector Plate

Rated insulation voltage	300 V
Cable length	20” (0.5m)
Terminal Strip	16 terminals
Connector	15 pin Molex
Max. conductor size	12 AWG
Mounting orientation	by screws
Weight	approx. 0.44 lb

Legend to Wiring Diagram

L1, L2:	To secondary of Isolation Transformer. Recommended in-line fuses
12V DC Com.:	Common connection of external Remote Indicator
Safe:	"Safe" light connection of external Remote Indicator
Hazard:	"Hazard" light connection of external Remote Indicator
M-, M+:	External mA meter (400 µA)
RI1:	Test button source
RI2:	Local and system muting from LIM and Remote Indicator
K1/NC:	NC contact of the alarm relay K1
K1/Common:	Common contact of the alarm relay K1
K1/NO:	NO contact of the alarm relay K1
GND2, LIM GND:	Ground connections, if one is interrupted LIM will alarm
L3/Test:	Remote "Test" function or connection L3 in three phase systems
K2/Common:	Common contact of the alarm relay K2
K2/NC:	NC contact of the alarm relay K2
K2/NO:	NO contact of the alarm relay K2
1S1:	Input for external current transformer
1S2:	Input for external current transformer
2S1:	Input for external current transformer
2S2:	Input for external current transformer
3S1:	Input for external current transformer
3S2:	Input for external current transformer
A(RS485):	A for RS485
B(RS485):	B for RS485
Shield (RS485):	Shield connection

Wiring Diagram

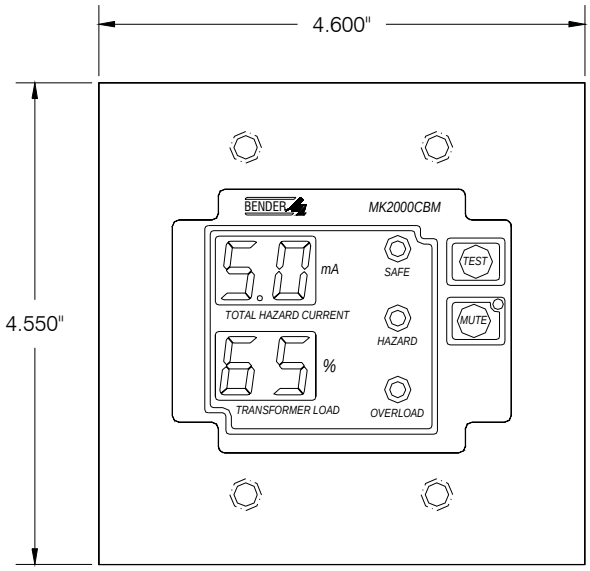


——·—— L3/Test connection is used as L3 in 3 Phase systems.
Overload option requires three (3) Current Transformers, (L1, L2 & L3), in 3 Phase systems.

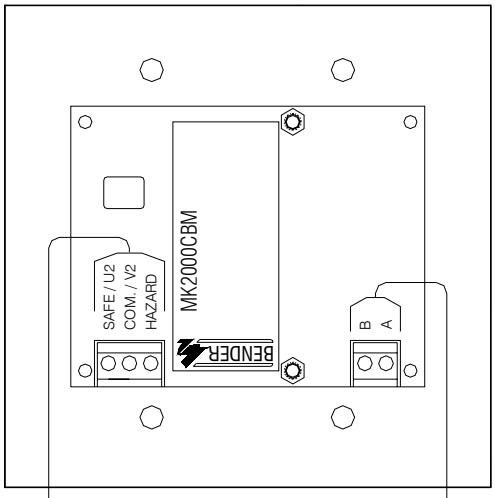
– – – – – – Shielded, twisted pair wire required for RS485 connection.
Ground shield at one end only as shown.
Termination Resistor - 120 ohm, 1/4 watt

MK2000M-G2

FRONT VIEW



BACK VIEW



FROM
LINE ISOLATION MONITOR (LIM)
CONNECTOR PLATE
CP-LIM2000

FROM
LINE ISOLATION MONITOR (LIM)
CONNECTOR PLATE
CP-LIM2000CB

Dimension Diagram (inch)

Standards

The BENDER Remote Indicator meets or exceeds all applicable U.S. and Canadian specifications. It complies with **NEC Article 517**, **NFPA 99**, **CEC, UL1022, CSA Z32.2** and is UL and CSA recognized.

Safety Instructions

Warning: Electrical equipment shall only be installed by qualified personnel in consideration of the applicable safety regulations.

NOTE:

If you have any questions or need further assistance, please call us using our toll-free number: (800) 356-4266.

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