

## DESCRIPTION

The LM232C Line Monitor Module is a printed circuit board that monitors the transmit and/or receive paths of an RS232C data line. When no line activity is present, a timer will begin timing the data loss period. At the end of the preset time period, an Alarm relay will de-energize and Status LEDs will change state. The alarm condition may be preset as latching or momentary (resets automatically when line activity returns). Independent timers are provided to monitor the transmit and/or receive paths or both. Alarm time delays are easily selected by dip switch settings to a maximum of 2.5 hours. The alarm relay is normally energized also providing an alarm on loss of power. The 12VDC power input is protected for overvoltage, overcurrent, and reverse polarity. The module is 2.75 x 4.25 inches and mounts on standoffs supplied with the unit.

**WARNING** Turn off all power feeding the module terminals before servicing or changing input/output wiring, removing or replacing fuses, etc. Failure to observe this warning may cause electrical shock hazard or may damage internal or external circuit components.

**CAUTION** The LM232C uses static sensitive electronic parts and is not user-serviceable. Use proper ESD precautions when handling, wiring, or servicing the unit to avoid damaging internal circuitry. Damage caused by the lack of proper ESD precautions will void warranty.

## INSTALLATION

1. Choose a location and drill (4) 0.187" (3/16") diameter holes to match the (4) corner holes in the printed circuit board. Push the nylon standoffs supplied into each hole and snap the module into place over the standoffs. Terminal Strip is depluggable for prewiring convenience.

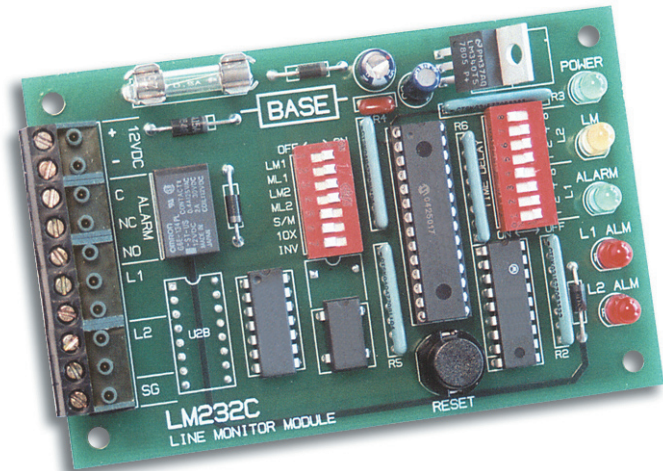
2. Complete systems wiring as shown on the opposite page. Before applying power to the module, set the option dip switches and Time Delay Unit Value dip switches needed. When 12VDC power is applied, the Green 'ON' LED will light.

## OPERATION

1. The Yellow 'LM' Line Monitor LED will light when line activity is present on the data path selected 'ON' at dip switches LM1 and LM2. If necessary, the RS232 line input logic feeding the LM232C module can be inverted by turning 'ON' the INV option dip switch.

2. When Line 1 or Line 2 has had no line activity beyond the preset time period, the associated Red LED will latch on. This latch does not affect the Alarm Relay or Green Alarm LED. The latched Red LEDs will remain on until the line activity returns AND the Reset button is pressed.

3. The Green 'ALARM' LED and the Alarm Relay are normally energized (ON) when line activity is present and normal. When an ML option switch is set to 'Latching', the Alarm Relay and Green Alarm LED will latch OFF at the end of the preset time period and will reset only when line activity returns AND the RESET button is manually pushed. When an ML option switch is set to 'Momentary', the Alarm Relay and Green Alarm LED will turn OFF at the end of the preset time period and will reset automatically when line activity returns.



### Option Dip Switch Programming

| Switch | Switch Function     | Off       | ----- | On       |
|--------|---------------------|-----------|-------|----------|
| 1 LM1  | L1 Activity Monitor | No        | -     | Yes      |
| 2 ML1  | L1 Alarm Function   | Momentary | -     | Latching |
| 3 LM2  | L2 Activity Monitor | No        | -     | Yes      |
| 4 ML1  | L2 Alarm Function   | Momentary | -     | Latching |
| 5 S/M  | Time Unit Select    | Seconds   | -     | Minutes  |
| 6 10X  | Time Scale          | X 1       | -     | X 10     |
| 7 INV  | Invert Input Logic  | No        | -     | Yes      |

### Time Delay Programming

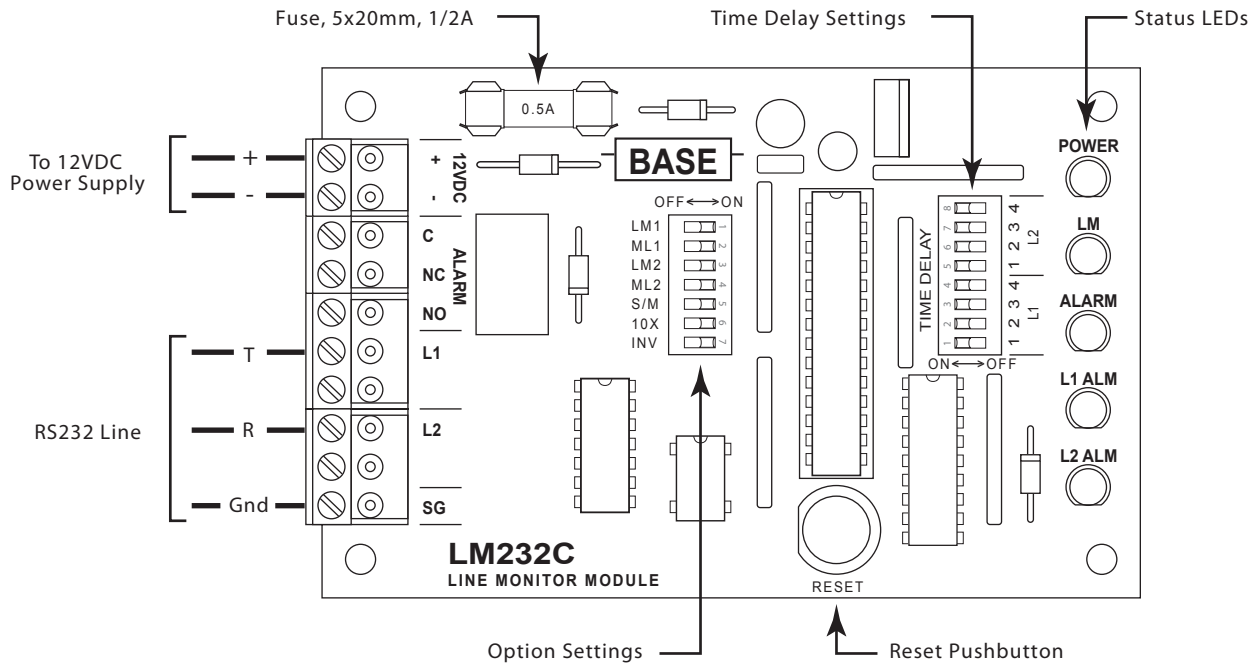
|  |  |
|--|--|
| Time Delay Dip Switch Unit Value settings are additive. Maximum dip switch setting is 15 (1+2+4+8 = 15). Delays for L1 and L2 are independently programmed. INV, S/M and 10X Dip Switch Settings globally apply to both L1 and L2. |  |
| Selectable Time Ranges:  |  |
| 1-15 seconds in 1-second increments  | 1-15 minutes in 1-minute increments  |
| 10-150 seconds in 10-second increments   | 10-150 minutes in 10-minute increments   |
| Example 1:<br>Desired Time Delay is 30 seconds.<br>Set Time Delay unit value for 3 (1+2)<br>S/M=OFF (seconds)<br>10X=ON (3 x 10 = 30)  | Example 2:<br>Desired Time Delay is 2 hours (120 min).<br>Set Time Delay unit value for 12 (4+8)<br>S/M=ON (minutes)<br>10X=ON (12 x 10 = 120) |

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**Go!**

# LM232C

## Line Monitor Module



### LM232C Specifications

- Indoor Temperature Range: -25° C. to +75° C.
- Electrical
  - Operating Voltage: 12VDC, Fused at 0.5A
  - Operating Current Draw: 150mA (0.150A) Maximum
  - Line Input Type: Standard RS232C
  - Output Relay Contact Rating: 2A Maximum
  - Connections: Depluggable Terminal Strip for 14-24AWG Wire
- Size: 2.75 wide by 4.25 long (inches)
- Mounting: (4) 1/4 inch high nylon standoffs included
- Indicators and Controls
  - 5 LED Status Indicators
    - Green - ON, Yellow - LM, Green - ALARM
    - Red - L1 ALARM, Red - L2 ALARM
  - 7-position Option Select Dipswitch
  - Dual 4-position Time Delay Select Dipswitch
  - RESET Pushbutton
- Time Delay Settings
  - Dip Switch Selectable
    - 1-15 seconds in 1-second increments
    - 10-150 seconds in 10 second increments
    - 1-15 minutes in 1 minute increments
    - 10-150 minutes in 10 minute increments

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The information in this manual is believed to be accurate in all respects. However, BASE Electronics cannot assume responsibility for any consequences resulting from the use thereof. The information contained herein is subject to change and BASE Electronics may issue a revision to incorporate such changes at any time.

#### Limited Warranty

The LM232C is warranted by BASE Electronics against manufacturing defects in materials and workmanship for a period of 1 year from date of purchase. During this period, any warranty repair required will be made at no charge for parts or labor. This warranty does not apply to any work or materials provided by any outside persons or technicians involved in the installation, unauthorized repair, connection, or testing of this product. This warranty does not cover any damage or failure caused by or attributable to Acts of God, abuse, misuse, improper or abnormal usage, faulty or improper installation or maintenance, neglect or accident. BASE Electronics is not responsible or liable for any special, consequential or indirect damages resulting from or in connection with the use or performance of this product as pertaining to economic loss, property loss, costs for removal or installation, or loss of revenues or profit. Except as provided herein, BASE Electronics makes no expressed or implied warranties. The duration of product performance for its intended purpose is limited to the duration set forth herein.

For Warranty or other repair, send the product postage prepaid to BASE Electronics and include Sender's name, company, address, phone and brief problem description. BASE Electronics will notify sender of any required repair costs not covered under this warranty prior to making such repairs.

*This Warranty gives you specific legal rights. You may have other rights that vary from state to state.*

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