

Telecommunication Peripheral Products Technical Practice

## Add Message Waiting Lamps for Voice Mail....On any Telephone System!



With Viking's MLC-24 you can integrate visual message waiting indication with nearly any phone system...even those phone systems which do not support message lamps.

The MLC-24 is compatible with virtually any voice messaging system with "out call" or "dispatch" feature. It can also be activated manually from a Touch Tone phone. The lamps can be reset by the voice mail system or from the user's telephone.

Commands are sent to the controller via C.O. line or analog PABX/KSU station or trunk port. Up to four MLC-24 controllers can be connected to a single line.

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## Features

- Each MLC-24 controls up to 24 message waiting lamps
- Compatible with 90 to 125 V message waiting phones
- Compatible with LED's or Viking LM-1 or LM-2 retrofit message waiting lamp kit
- Displays both steady lamp or flash for urgent messages
- Expandable in multiples of 24 lamps
- Uses existing C.O. lines or analog PABX/KSU stations
- Built in diagnostics to aid installer
- Voice mail systems that don't provide message waiting voltage
- Remote voice mail systems
- Staff "In - Out" board
- "Do Not Disturb" lights


## Sales...(715) 386-8861

## Specifications

Power: 120V AC/13.8V AC 1.25A, UL listed, adapter provided Dimensions: $8.25 \mathrm{~mm} \times 160 \mathrm{~mm} \times 44 \mathrm{~mm}(8.25 " \times 6.25$ " $\times 1.75$ ") Shipping Weight: 1.36 kg ( 3 lbs .)
Environmental: $0^{\circ} \mathrm{C}$ to $32^{\circ} \mathrm{C}\left(32^{\circ} \mathrm{F}\right.$ to $\left.90^{\circ} \mathrm{F}\right)$ with $5 \%$ to $95 \%$ noncondensing humidity
Connections: (1) RJ21X male, (1) RJ21X female, (1) RJ11 com port

## A. Centrex or PABX Installation with Standard Phones

Unused
I PABX Trunk
'Input or Analog Station

Control
Contro
Phone C.O. Lin

1-24 C.O. lines or analog PABX/KSU stations



Control Line analog station sets.

## Diagnostics

 connected and wired. of the battery). jack.4. Set the dip switches as shown below.
5. Momentarily press the line, and retest.
r-Station/Trunk Switch - Switch to STATION when connecting the "control line" to a C.O. line or an analog PABX/KSU station. Switch to TRUNK when connecting the "control line" to a dedicated phone or unused (loop start) trunk input.


Connect the Yellow and Black to the positive of the talk battery, normally earth ground (see Important below).

- Neon/LED Switch - Switch to NEON when using standard 90-125V message waiting phones or Viking Model LM-1 on standard phones.

Most 48 volt C.O. line or analog PABX/KSU stations require no station rewiring as the 90 to 125 volt signal is superimposed on the existing tip and ring. The lamp controller is compatible with standard 90 to 125 volt message waiting lamp phones as well as Viking model LM-1 retrofit message waiting lamp kit installed on modular

Important: The Yellow and Black of the RJ-14 jack, "COM", MUST be connected to the positive of the talk battery for proper reference. This is normally earth ground on most C.O. lines or analog PABX/KSU stations.
Note: This application requires that the correct polarity (tip=positive, ring=negative) be observed on J1 for proper operation.

After wiring J 1 , the polarity may be tested using a volt meter. An easier method is to use a Viking model LM-24D display in conjunction with the MLC-24's built in diagnostics as follows:

1. Be sure that J 2 is disconnected and that J 1 is
2. Make sure the BK and $Y$ of the "COM" RJ-14 are connected to the earth ground (positive side
3. Connect a Viking LM-24D display to the COM reset switch. If any LED's remain lit, reverse tip and ring (going to J 1 ) for that

| Dip Switch | Setting |
| :---: | :---: |
| 1 | OFF |
| 2 | ON |
| 3 | OFF |
| 4 | ON |

## B. Electronic or Digital Phone Installation with LM-2 Message Waiting Lamps

 LM-2 on a separate pair.


Note: Electronic or digital telephones usually require a separate dedicated pair for operation of the message waiting lamps. When a dedicated pair is used, the MLC-24 can provide low voltage for direct operation of LED indicators, such as the LM-2.

## Programming

## A. Assigning Group Lamp Numbers

Additional MLC-24's can be added for controlling up to 96 message waiting lights. Set the dip switches as shown below.

| Dip Switch |  | Group Number |
| :--- | :---: | :---: |
| Assignment |  |  |
| $\mathbf{1}$ | $\mathbf{2}$ | AFF |
| OFF | OFF | $1-24$ |
| ON | OFF | $25-48$ |
| OFF | ON | $49-72$ |
| ON | ON | $73-96$ |

Unused PABX Trunk Input or Analog station


## Operation

A control phone connected directly to the MLC-24's "control line" controls the lamps. The "control line" may also be connected to a C.O. line, analog PABX/KSU station, or an unused C.O. port.

One MLC-24 controller can serve 24 different station lamps, plus up to three 24 line status displays (LM-24D or LM12W) for the receptionist(s). Up to four MLC-24's can be installed on a single extension or line.

In voice mail applications the "dispatch" or "out-call" feature is used to call the extension assigned to the MLC-24, which answers and provides a 500 Hz tone. The voice mail system then sends a three digit DTMF code that specifies the status of an individual lamp. For example, a Touch Tone code of "1, 24" would cause lamp 24 to be off, a "2, 24" would cause it to be on steady, a " 3,24 " would cause it to flash and a " $\mathbf{4}, \mathbf{2 4}$ " would cause it to fast flash. When the three digit code is complete, the MLC-24 hangs up. The 3 digit code can also be entered manually from any Touch Tone phone.

In applications where a ringing extension is not available, the MLC-24 can be programmed to provide talk battery for direct connection to an unused trunk input, a standard DTMF phone or the voice mail "dispatch" or "out-call" port, if compatible.

## A. On Premise Operation

When the MLC-24 is connected to a station circuit of a PABX, the voice mail system or user must first dial the station (extension) number connected to the MLC-24's "control line." The MLC-24 will answer with a steady tone. The command codes can then be entered as shown in the table to the right.

## B. Off Premise Operation

| Signaling the MLC-24... | Enter Digits |
| :--- | :---: |
| 1. ..to turn lamp OFF at station $\mathrm{xy}^{*}$ | $\mathbf{1 + \mathbf { x y } ^ { * }}$ |
| 2. $\ldots$.to turn lamp ON at station $\mathrm{xy}^{*}$ | $\mathbf{2 + \mathbf { x y } ^ { * }}$ |
| 3. ..to flash a lamp at station $\mathrm{xy}^{*}$ | $\mathbf{3 + \mathbf { x y } ^ { * }}$ |
| 4. $\ldots$.to fast flash a lamp at station $\mathrm{xy}^{*}$ | $\mathbf{4 + \mathbf { x y } ^ { * }}$ |
| 5. $\ldots$ to turn all lamps OFF | $\mathbf{1 - 4 + 9 9}$ |

## * $\boldsymbol{x y}$ refers to numbers 1-96

When the MLC-24 is located in a remote facility, the voice mail system or user must call the telephone number of the phone line connected to the "control line" of the MLC-24 (J2 Pins 25, 50). The MLC-24 will answer with a steady tone. The command codes can then be entered as shown in the table.

## C. Message Waiting Lamp Illumination

## 1. Neon Message Waiting Phones and/or LM-1 Modular Message Waiting Lamp Retrofit Kit

This kit will illuminate when the receiver is on-hook. They will go out when the receiver is off-hook and go on as the receiver is returned on-hook. The lamp may be extinguished by an off Touch Tone code or by momentarily (.25-2 seconds) going off hook.

## 2. LM-2 LED Message Waiting Lamp Kit

This kit will illuminate immediately and remain on until the LM-2 switch is depressed momentarily (.25-2 seconds) or an off Touch Tone code is issued to extinguish the LED.

## 3. LED's

These will illuminate immediately and remain on until an "off" Touch Tone code is issued to extinguish the LED.

## D. Power Failure

In the event of AC power failure, the message waiting lamps will not function. All telco operations will operate as normal.

## E. Special Features

1. With switch positions 1 and 3 in the OFF position and 2 and 4 in the ON position, the display will indicate on or off hook condition for 24 lines (off-hook = LED is on, on-hook = LED is off). Note: Depress the reset button on the MLC-24 after changing switch positions.
2. With switch positions 2 and 3 in the "off" position and 1 and 4 in the "on" position, the installer can generate a test pattern that will aid in the installation. The MLC-24 will turn the lamps on one at a time, then turn them all off. This will continue until the switches are placed back into position for normal operation.

## Product Support Line...(715) 386-8666

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