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Microframe Corporation

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FCC Notice

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

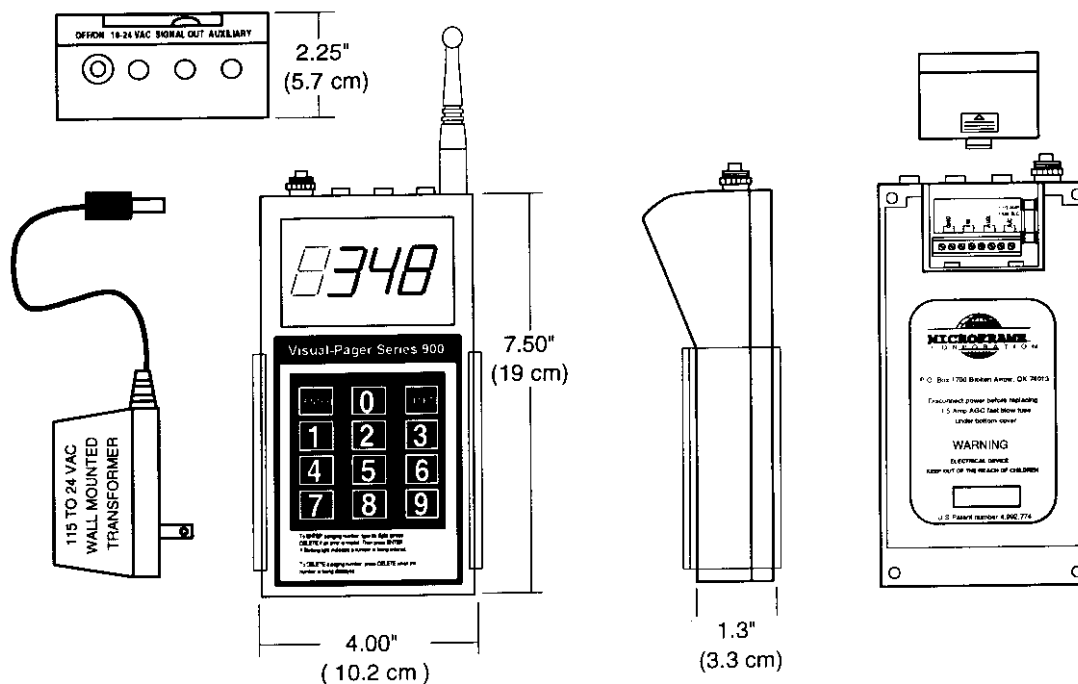
- Reorient or relocate the receiving antenna.
- Increase the separation between the Visual-Pager and receiver.
- Connect the Visual-Pager into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Model 1904 Keypad Specifications

Model 1904 Keypad

Local Keypad Display	Built-in LED readout
Remote Display	Wall mount 5 1/2" LED Display
Maximum Number of Digits	Four digits
Maximum Number of Numbers Stored	30 four-digit numbers will be stored and sequenced until deleted.
Maximum Number of Keypads	Up to 32 Keypads may be connected together using 2 wires to allow input from different locations and a combined output to one or more displays.
Power Input Requirements	24VAC 1.2A supplied by transformer which requires 115 Volts AC @ .72 Amps
Fuse Requirements	1.5 Amp GMA (5mm x 20mm) fast-acting fuse
Weight75 lb (.4 kg) with transformer 2.25 lb (1.0 kg)
RF output	902-928 Mhz.



ARCHITECT'S SPECIFICATIONS: The Visual-Paging System shall use a Keypad capable of transmitting signal to Remote Displays. The Keypad shall have a display to show the number being entered as well as the number being shown on the Remote Display. The Keypad shall be capable of holding 30 four-digit numbers and rotating them every 3 seconds. Multiple Keypads may be connected at any time by attaching them with a cable going between keypads. Numbers may be entered or deleted from any Keypad. The Keypad shall be supplied with a surface-type wall mount bracket. The Keypad shall be powered by a 1.2 amp UL approved wall mount 24-volt transformer. The Keypad shall be fused with a 1.5 amp fuse.

Models 1940 Remote Display Specifications

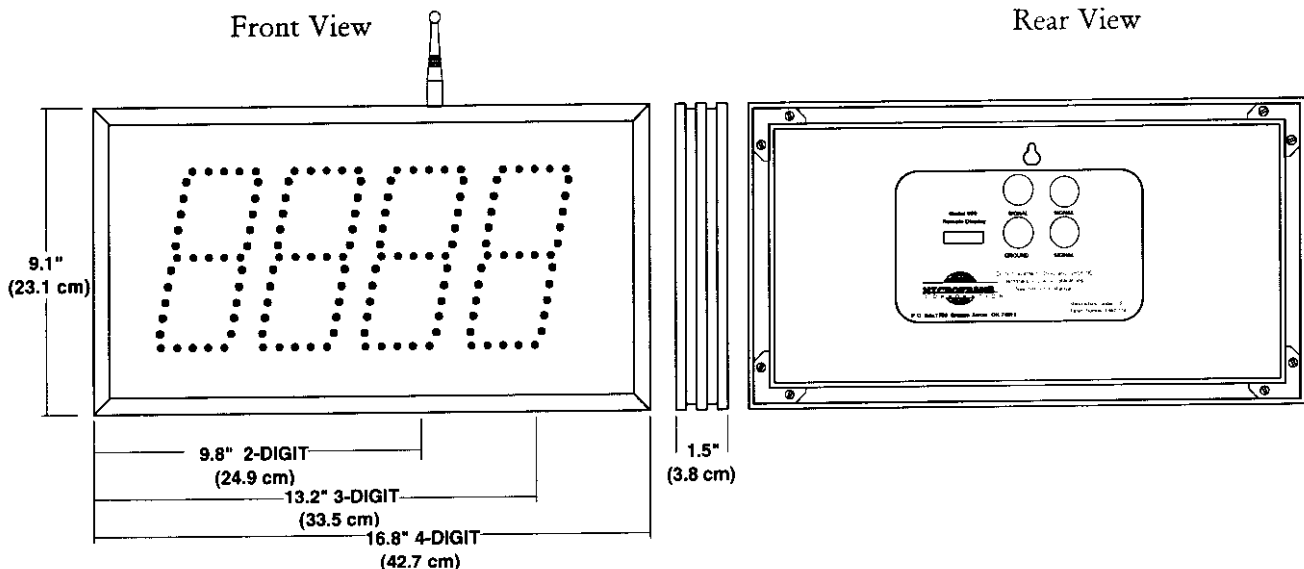
Microframe Model 1940 Remote Display

Remote Display	Wall mount 5 1/2" LED Display
Power Input Requirements	24VAC 1.2A supplied by transformer which requires 115 Volts AC @ .72 Amps
Character Height	5.5 inch (14 cm)
Character Viewing Distance	150 feet (45 meters)
Weight	4 Digit, 3.5 Lbs (1.6 kg)

Operation

The Remote Display is designed to operate with the Model 1904 Keypad. The Remote Display receives signal from the Keypad.

Models 1940 Remote Display



ARCHITECT'S SPECIFICATIONS: The Remote Display shall be a Microframe Model 1940 (four-digit) surface mount display. It shall hang on a single fastener extending out 3/8 inch from the wall. The numbers shall be 5 1/2 inches (14 cm) tall. The Model 1940 LED Display shall receive signal from the Model 1904 Visual-Pager Keypad. The Keypad will accept up to four digits Only high brightness wide-viewing angle LEDs shall be used in the construction.

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INSTALLATION PROCEDURE

When installing the Visual-Pager System, the following procedures should be followed.

IMPORTANT PRE-INSTALLATION INSTRUCTIONS

Before permanent installation, we recommend that you test your entire system in one room on a table or floor. This will be of great benefit in troubleshooting if you should have any problem after installing the system.

STEP 1: Test 1904

Connect the wall mount transformer to the Model 1904 Keypad at the 18-24 VAC connector. Turn power "ON" and enter a number. If the number appears on the Keypad display, the Keypad is working.

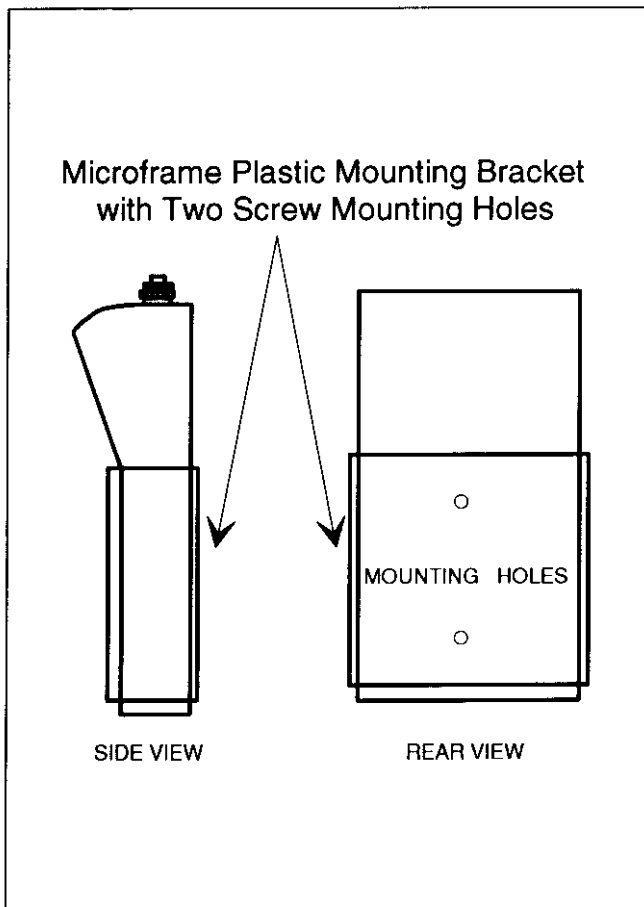
STEP 2: Test 1904 & Display

Connect the wall mount transformer to the display at the 18-24 VAC connector. Type numbers into the keypad and they should appear on the remote display.

Permanent Installation

FIRST: Select location for Display and Keypad.

In almost all lowpower unlicensed wireless systems there is a chance that some places in a particular building may be "dead spots". (Places where the display will not receive the signal from the keypad.) These "dead spots" however may only be a few inches apart. Therefore moving a display 6 inches in any direction could well make the difference between a working and non-working system. To select the place where the system will best work for you Place the keypad in your most ideal location. Lean it against something so the antenna is vertical like the display. This will establish the best signal link. Type several numbers into the keypad like 10, 20, 30. Next take the display to its most ideal location. If the numbers appear on the display and rotate through every 3 seconds then everything is fine and you may proceed with the permanent installation. If however the system is not working try moving the display or keypad to slightly different locations and repeat the test until you find a suitable setup for the system.



Mounting for Model 1904 Keypad

CAUTION

24 VOLTS A.C. IS PRESENT UNDER THE SMALL SLIDE-ON COVER. TURN POWER OFF TO PREVENT DAMAGE TO 1904 UNIT.

INSTALLATION PROCEDURE

(continued)

SECOND: Install The 1904 Keypad

Select a location that is handy but not in the way. The Model 1904 Keypad should be mounted on the wall with the antenna pointing up. Locate the Keypad so that the cord from the wall-mount transformer will not be accessible to children or present a safety hazard. The installation location must be within 5 feet of an AC power outlet so that the cord may reach the Keypad.

Place the Keypad in the enclosed plastic wall mounting bracket, if needed. Place at the desired mounting location and mark the position. Slide the Keypad out of its mounting bracket and attach bracket using screws supplied. Once screws are screwed in flush with back of bracket, slide Keypad into bracket. The Keypad is easily removed, if necessary.

Install the Keypad and connect to AC power. Test for operation by entering a number and observing this number in the built-in display of the Keypad. This verifies that the keypad is working.

THIRD: Install the Remote Display

The Remote Display will have optimum visibility when mounted within five to 10 feet of the stage floor. This will keep the display in the proper field of view for the observer.

Type several numbers in to the keypad like 10, 20, 30. Then hold the remote display in position and watches the numbers. If the numbers appear on the display and rotate through every 3 seconds then everything is fine and you may proceed with the permanent installation. The Remote Display may be hung on a screw anchored in the wall.

VISUAL-PAGER 1904 Keypad

1904 FEATURES

- **Multiple Paging**
- **Multiple Inputs / Outputs**
- **User Programmable Options**
- **Wireless 900 Mhz**

Use with:

- **Model 1940 4-digit Display**



OPERATION

Instructions for Use

The Model 1904 Keypad has its own built-in, easy-to-read display so that you can see what numbers are being entered as well as what numbers are being shown on the Remote Display.

Normal Mode

While in normal mode, the Keypad display will show the same numbers as the Remote Display.

Enter Mode

When a number button is pressed, the Keypad will go into enter mode and the "ENTER" light will flash. While in enter mode, the number to be paged will be shown only on the Keypad display. Continue to press number buttons until the complete number to be paged is shown. Then press "ENTER" to display the paging number on the 1940 Remote Display. When "ENTER" is pressed, the Keypad will leave the enter mode and the new number will be placed in sequence with any other numbers displayed on the Remote Display. If you make an error while entering a number, press "DELETE."

Delete Mode

To delete a paging number, press "DELETE" when that number appears on the display. The next available number will be displayed immediately. You may also delete a number at any time by typing the number and pressing "DELETE."

Multiple Paging

The Keypad will store up to 30 four-digit numbers and display them sequentially until the operator deletes them. These numbers may be entered one at a time using the instructions above.

Multiple Outputs

You may have an unlimited number of Remote Displays connected to your system.

Multiple Keypads - Model 1904

You may cascade up to 32 Model 1904 Keypads by wiring the keypads together. Use a common cable connected to the "Signal Out" output from each Keypad. Numbers entered from each Keypad will automatically be combined and displayed in sequence with all the numbers entered from all Keypads. Each Keypad will display all numbers entered from itself as well as all numbers entered from all other Keypads at the same time they are displayed on the Remote Display(s). A number may be deleted by pressing "DELETE" on any Keypad when that number appears in the Keypad Display, or by typing in the number then pressing "DELETE."

Power Connection

Connect the wall mount transformer to an AC outlet and connect the power plug to the connector on the top of the Keypad marked "18-24 VAC ." It is recommended that you turn the power off using the "ON/OFF" switch on the Keypad when not in use. This will greatly prolong the life of the system.

Fuse

The Model 1904 Keypad contains a fuse inside the case under the small slide-on cover. When replacing the fuse, be sure to disconnect power from the AC wall outlet. Replace only with the fuse size stated in the 1904 SPECIFICATIONS; otherwise permanent damage may occur.

Programming Options

The following user programmable options are available in the Model 1904 Visual-Pager. See Programming Instructions on pages 15 and 16 for details.

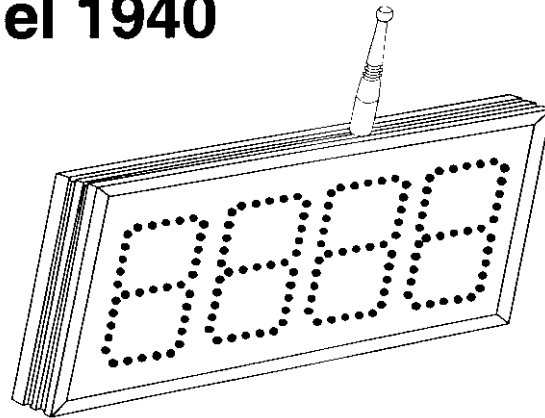
- Option 13....Change display rotation time from 0 to 9 seconds. When 0 is selected, the display will only rotate one number each time the **DELETE** Button is pressed.
- Option 14....Automatically delete numbers after a delay of 1 to 9 minutes.
- Option 17....Delete Keypad sound.
- Option 19....Reset to Factory Defaults.
- Option 21....Cancel Number Sort

Option Connections

The Model 1904 Keypad has two optional connections on the 8-pin terminal block located under the small removable cover;

1. **AUX**—Auxiliary connection for use with the extra cost Remote Delete Option.
2. **A/C**—Remote 24 VAC Input used when a transformer other than the wall mounted one supplied with the system is required, such as an attic-mounted transformer installation.

Display Model 1940



Display Features

- *5 1/2" LED Numbers*
- *Four-Digit Remote Displays*
- *Simple Surface Mount*

POWER

Each Remote Display must be connected to a 24 Volt AC adaptor. This supplies the power to the display.

MAXIMUM NUMBER OF DISPLAYS

You may have an unlimited number of Remote Displays connected to your system.

USER SERVICEABLE PARTS

There are no user serviceable parts inside the Remote Display. If the Display fails to work consult the factory for replacement or repair.

Explanation of Error Codes

There are four error conditions that will cause an Error Code to appear on the Model 1904 Keypad display. It will be of great assistance in troubleshooting the system if you will note the displayed code when calling the factory for assistance. Call 1-800-635-3811 for technical support.

ERROR MESSAGE	CAUSE
E1-SHORTED CABLE	There is a shorts on the cable between keypads probally within 100feet.
E2-SHORTED CABLE	There is a shorts on the cable between keypads probally over 100feet away.
E3-NO SIGNAL OUTPUT	The output transistor is blown and there are no numbers shown on the Remote Displays. DO NOT ATTEMPT TO CORRECT THIS PROBLEM. Return the Model 1904 Keypad to the factory.
E4-PROGRAMMING ERROR	There is a programming error. Return Model 1904 Keypad to Factory Defaults by PRESSING 19 in the Programming Mode (see Programming Instructions for more details).

Troubleshooting Chart

SYMPTOM	POSSIBLE CAUSE	CURE
Keypad display and Remote Display are not working.	Keypad is not connected to power. Power supply is bad or Keypad fuse blown.	Check AC wall connection or change to another wall outlet. Replace Model 1904 Keypad fuse.
Keypad display works but Remote Display does not work.	Power may not be connected to display.	Check power connection to display. Make sure power lite is ON.
Keypad works but d Keypad displays E3.	Output transistor is blown.	Return Model 1904 Keypad to factory.
Model 1904 Keypad works until the cable connecting other keypads is plugged in, then it displays E1 or E2.	Cable connecting other keypads is shorted.	Systimatically disconnect cable or use ohmmeter to determin where short is located.
Keypad display shows E4.	Programming error.	Reset to Factory Defaults (see Programming Instructions).

Programming Instructions

The Model 1904 Visual-Pager offers several User Programmable Options which can easily be entered by adhering to the following instructions.

Programming Mode

To enter the Programming Mode, hold the "ZERO" key down when turning the Model 1904 "ON." The Model 1904 Keypad will display the serial number. Release the "ZERO" key, you are now in the Programming Mode. To change any of the factory selected defaults, select the Option Number listed below and press that number. To EXIT the Programming Mode, simply press "DELETE." Should the Error Code **E4** appear at any time, you may return the system to the factory defaults (Option Number 19) and start over.

OPTION NUMBER 1: Display Software Revision Number

Once in the Programming Mode, press "ENTER" on the Keypad and the current Model 1904 software revision number will be displayed, for example, 20, 21, 22 etc. To continue in the Programming Mode, press one of the Option Numbers listed below or press "DELETE" to exit the Programming Mode.

OPTION NUMBER 13_1 to 9: Display Rotation Time

While in the Programming Mode press "13" on the Keypad, the number 13_3 will be displayed indicating that your Model 1904 Keypad was shipped with a pre-programmed display rotation time of 3 seconds. Each number entered into the system will be displayed for 3 seconds before rotating to the next entered number. Should you wish to increase or decrease the time between displayed numbers, select and enter any number from 1 to 9 seconds on the Keypad and press "ENTER." The display rotation will be the number of seconds (1-9) you selected.

OPTION NUMBER 13_0 : Manual Advance Option

It is also possible to program your Model 1904 to store a series of numbers then display them in sequential order on demand. It will start with the first number entered and rotate to the next number each time the "DELETE" key is pressed. This option is useful in a song service for displaying the next song without the system automatically rotating the songs. To select this feature, press "13_0," "ENTER" on the Keypad. The display rotation time is now Zero or turned OFF. To reset the display rotation time, see Option 13 above.

(NOTE: To display numbers as they were entered you must turn off the sort routine using OPTION 21.)

OPTION NUMBER 14_0 to 9 : Auto Delete Option

The Model 1904 Keypad will normally display any entered number until manually deleted by pressing the "DELETE" key. The Auto Delete Option will automatically delete each entered number after 1 to 9 minutes. Should you wish to enable the Auto Delete Option, enter the Programming Mode, and then press "14" on the Keypad. The Model 1904 Keypad reads 14_0 indicating the Auto Delete is "OFF." Select and press any number from 1 to 9 minutes and press "ENTER." The Model 1904 will now Automatically Delete each entered number after the minutes entered have elapsed, for example, 14_3 = 3 minutes.

OPTION NUMBER 17_0 or 1 : Keypad Beeper Option

The Model 1904 has a built-in beeper that "clicks" every time a keyboard entry is made. If you wish to disable this feature, press "17" on the Keypad while in the Programming Mode, then press "1," "ENTER." The beeper is now disabled. To reactivate the beeper, simply press "17_0" "ENTER" while in Programming Mode.

OPTION NUMBER 19_ : Reset to Factory Options

At any time while in the Programming Mode, the Model 1904 can be reset to the Factory Options by pressing "19." The Keypad display will blink once and then display the current revision number indicating the Factory Options have been reset.

OPTION NUMBER 21_0 or 1 : Number Sort Option

This option lets the user decide whether or not to display the numbers in numerical order or the order in which they were entered. To disable the number sort, press "21_1" on the Keypad while in the Programming Mode, then "ENTER." The sort is now disabled. This will set the number option to display the numbers in the order that they were entered. To enable the sort press "21_0", "ENTER" and the sort routine will again sort the numbers.

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