

***Scope***

Programmable Voltage Interface Unit

Models

VSP12824V & VSP12860V

Installation & Programming Manual

## PREFACE

### ***Important Installation Information***

It is the purchasers' responsibility to determine the suitability of this equipment and its derivatives for any given application, Scope cannot give specific advice in this manual, as each use will require independent evaluation.

Scope has, wherever possible, employed extra safeguards or designed optional equipment to further monitor the system's performance. Certain system installations, operational requirements or budgets may, however, limit the effectiveness of these safeguards. Again, the suitability of the system for any given application must therefore be decided by the installer and their customer, relative to the application and risk.

### **License**

This equipment is cleared for use within the USA under a license assigned to the exclusive importer, PIPS Holdings Inc. License No. 950415906. Certain restrictions apply in respect of power output and antenna installations. Alternative frequencies are available by formal license application (Form 600) via the FCC. These will not be subject to the same restrictions as the standard assigned license. You should obtain the FCC Rules and Regulations, Title 47, Part 80 to End, including Parts 90 and 95, available from the US Gov. Printing Office, GPO Bookstore, FCC Office or [www.fcc.gov/oet/info/rules/](http://www.fcc.gov/oet/info/rules/)

### **Important Safety Information**

Scope products are designed to operate safely when installed and used according to general safety practices. The following requirements should be observed at all times.

#### **Do NOT subject this equipment to:**

- Mechanical shock
- Excessive humidity or moisture
- Extremes of temperature
- Corrosive liquids

This equipment is designed for indoor use, unless expressly stated otherwise, and must not be used in classified Hazardous Areas, including areas containing explosive or flammable vapors, unless express authorization has been given in writing by the manufacturer. If in doubt, consult your local product dealer for further information.

Do not obstruct any slots or openings in the product. These are provided for ventilation to ensure reliable operation of the product and to protect it from overheating.

Only use a damp cloth for cleaning (not liquid or aerosol based cleaners), and ensure that any power is removed from the unit prior to beginning the cleaning operation.

Removal of covers from the equipment must only be undertaken by authorized service personnel, who must ensure that power is isolated prior to removal.

## PREFACE

### Equipment Applications

It is the user's responsibility to determine the suitability of the Scope products for any given application. Scope, including its subsidiaries and Distributors, cannot provide specific advice within this manual, as each application will require independent evaluation. Common sense dictates that certain applications may require back up systems to cover in the event of mains or equipment failure. All applications should be thoroughly assessed by the installer in conjunction with the customer so as to minimize risk. Scope has no control of the use and application of the frequencies issued by the FCC. Some equipment that is individually licensed may have a greater degree of protection than other equipment that is operated on a FCC License Assignment basis. The following information, however, may be of benefit.

### Equipment Testing.

Range tests should be carried out at least once a week on portable radio equipment, more often when critical criteria apply. This should involve testing the unit past the limit of its required working range. Good working practice dictates that a suitable system installation log, covering both portable and fixed equipment must be generated, together with a record of the dates when the system has been manually checked and/or serviced, (with the aid of suitable test equipment etc.) enabling the system performance to be compared with the original installation data.

The frequency of the tests required will vary between applications. If portable equipment has been dropped or is worn by a person involved in an accident, the unit should be tested again before re-use. It must be stressed that the physical range tests are essential and that any construction work or movement of plant or equipment could alter the signaling capability of the unit. Radio equipment, like any other requires servicing from time to time to ensure that it is operating to its optimum performance. It is therefore essential that equipment is inspected and tested by authorized service centers at least once a year.

### Literature

Scope Marketing (Communications UK) Ltd, the manufacturer, in conjunction with its distributors operates a policy of continual improvement, and therefore reserve the right to modify or change any specifications without prior notice.

While every possible care has been taken in the preparation of this manual, Scope does not accept any liability for technical or typographical errors or omissions contained herein, nor for incidental or consequential damage arising from the use of this material.

### Installation

Installation must only be undertaken by an Approved contractor, who shall ensure that all work is carried out in compliance with the appropriate State and Federal Regulations. For mains powered equipment, a readily accessible isolating fuse or socket must be located within 1 meter of the equipment.

### Liability

Scope does not accept liability for any damage or injury, howsoever caused as the result of misuse of this equipment. It is the responsibility of the user to ensure that the equipment is operated in the manner for which it was intended and that it is the correct item of equipment for the required task.

PREFACE

**Warranty**

This product is warranted as free from defects of workmanship and materials for a period of one year from the original purchase date. During this time, if there is a defect or malfunction of this product, Scope will, with proof of purchase, repair or replace at its discretion any defective parts, free of charge. This does not include where the adjustments, parts and repair are necessary due to circumstances beyond the control of Scope, including but not limited to fire or other casualty, accident, neglect, abuse, abnormal use or battery leakage damage.

There are no other expressed or implied warranties except as stated herein, and those excluded include those of merchantability and fitness for a particular purpose. In no event will Scope or any of its agents be liable for direct, indirect, special incidental or consequential damages resulting from any defect in the product, even if advised of the possibility of such damages.

The warranties and remedies set forth above are exclusive and in lieu of all others, oral or written, expressed or implied. No Scope distributor, dealer, agent or employee is authorized to make any modification, extension or addition to this warranty.

Some states do not allow limitations on how long an implied warranty may last and some states do not allow exclusions or limitation of incidental or consequential damages.

**Warning ! No User Serviceable Parts**

Alteration or modification to any part of this equipment, without the prior written consent of the manufacturer, will invalidate all manufacturer approvals and warranties. No adjustments can be undertaken except by qualified and licensed persons as defined by the FCC Rules and Regulations. Operation of altered equipment can result in fines, imprisonment, and/or confiscation of such equipment.

### Description

This product has been designed specifically to work with nurse call systems that require four separate messages for each event. It consists of up to 128 opto-isolated inputs that will accept voltages from +12 to +30 volts dc (**VSP12824V**) and 5 to 60 volts DC or AC (**VSP12860V**). In response to a change of state on any input, messages selected from a table are sent via the serial port to a Scope paging transmitter.

Each column of 8 inputs has a single “common” connector in the center of the group of terminals. The pager messages are held in a non-volatile memory (EEPROM) which can be programmed by using the Microsoft Windows Visual Basic program, Voltage Interface Program (VIP).

The Serially Programmable Voltage Board consist of a total of 128 contact inputs and is housed in a 13”H x 7.5”W x 2.5”D wall mounted housing. Cable access is via four inputs fitted with strain relief couplings. The unit requires 12 vdc, which is supplied by a 115-volt ac adapter.

The Serially Programmable Voltage Board is designed for use with a four-state nurse call system. The four states expected at the inputs are as follows.

- Voltage Pulsing at 2Hz**
- Voltage Pulsing at 1Hz**
- No Voltage Present**
- Steady State Voltage Present**

Priority is given to the four conditions in the order shown above, with the **2Hz signal** being the highest priority. All pending “**priority 1**” calls are sent before the next priority calls are serviced.

Because the need to analyze the conditions present on the inputs, the time between a condition being present, and the message being sent is approximately 2 seconds, depending upon the priority of the call, and other pending higher priority calls. This means that a condition must be present for about two seconds to be accepted. Once accepted, a condition will be paged, even if the state changes before it is paged. In this way, during high activity periods where many inputs may be changing, messages will not be lost providing the input state remains present for two seconds.

The scanning procedure does not cease when an input changes, i.e. the system does not stop to analyze a single input, but scans all inputs a number of times (approx. 20ms for one scan) in the two second scanning period. Any pending messages continue to be sent during the scanning period, in this way the system operates continuously under all circumstances.

### Installation

1. Remove the cover by loosening the four screws located at the top and bottom of the unit.
2. The interface unit is mounted to the wall by four (4) mounting screws fixed through the back plate. Hold the back plate up to the mounting surface and mark the location of the mounting holes. Set the interface unit aside.
3. Using a ¼” drill bit, drill the marked holes 1-1/4” deep.
4. Using the supplied mounting hardware and mount the back plate to the mounting surface.
5. Connect alarm input leads to the appropriate terminal. Each set of eight (8) inputs has a single common. **DO NOT TIE COMMONS TOGETHER.** Negative to common and positive to contact input.

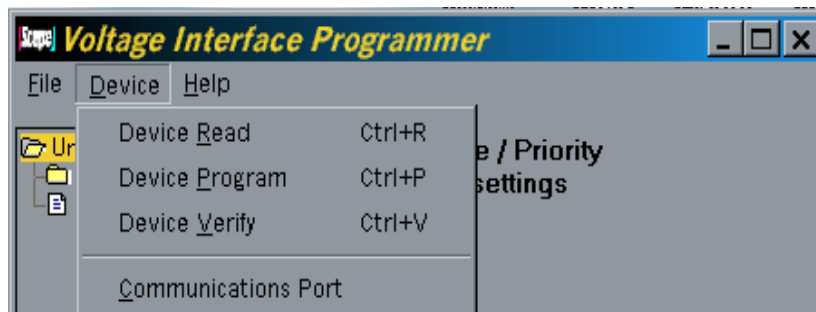
## SCOPE Serially Programmable Voltage Interface Unit

6. Install the AC adapter (115vac to 12vdc) to the interface unit and plug it into a 115 vac wall outlet.
7. Connect the interface unit to your computer serial port using the 10-foot 9-pin to 9-pin cable supplied with your unit.
8. Set the serial port on your computer for 9600 baud, parity of 8, N, 1.
9. Proceed to the programming section of this manual.
10. AFTER PROGRAMMING the interface unit, connect the unit to the ConneXions transmitter using the 10-foot 9-pin to 9-pin cable supplied with your unit.

### Programming

Programming the contacts is accomplished by using the MS-Windows® Voltage Interface Program. The MS-Windows **Voltage Interface Program** (VIP) is designed to run on any Microsoft platform. The license issued with the VIP program does not imply that you have a licensed to use any of the Microsoft products. If the user does not understand the operation of MS-Windows™ you should refer to the windows operations manual before installing the VIP software.

The user can program one or all contacts. You can use a preprogrammed default file stored on a disk or **read** the configuration from the Voltage Interface unit and update the appropriate contact and reprogram the Interface unit.



#### A. Definitions

<b>LOCATION</b>	The name of the location for this event.
<b>PRIORITY 1</b>	Highest priority, Voltage input drops below 12VDC. Pulsing at 2Hz Rate.
<b>PRIORITY 2</b>	Pulsing at a rate of 1Hz .
<b>PRIORITY 3</b>	Standard Call, Voltage input drops to below 12VDC and stays off.
<b>RESET</b>	Voltage goes to 24 to 30 VDC steady.
<b>PAGER ID</b>	Enter the full Seven digits (i.e. 0013200)
<b>PAGER BEEP</b>	Alerts type A, B, C, or D.
<b>REPEAT</b>	The number you enter is how may times the system will Scan the 128 inputs before it will repeat the message of a triggered event. (i.e. if a number of 5 is in the REPEAT box, the system will scan the 128 contacts five time before transmitting a repeated message.)

**See chart on page 5 for REPEAT SETTING vs MINUTES.**

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- B. Determine the type of programming to be performed.
1. Modify the current configuration in the Voltage Interface Unit.
  2. Program the Voltage Interface Unit with a new configuration.
- C. Modify current configuration
1. Select [**Device**], [**Device Read**].
  2. Select the **Zone** to be modified. (note: Zone = Contact)
  3. Enter changes.
  4. After all changes have been accomplished select [**Device**], [**Device Write**]. The system will load the edited file to the interface unit.

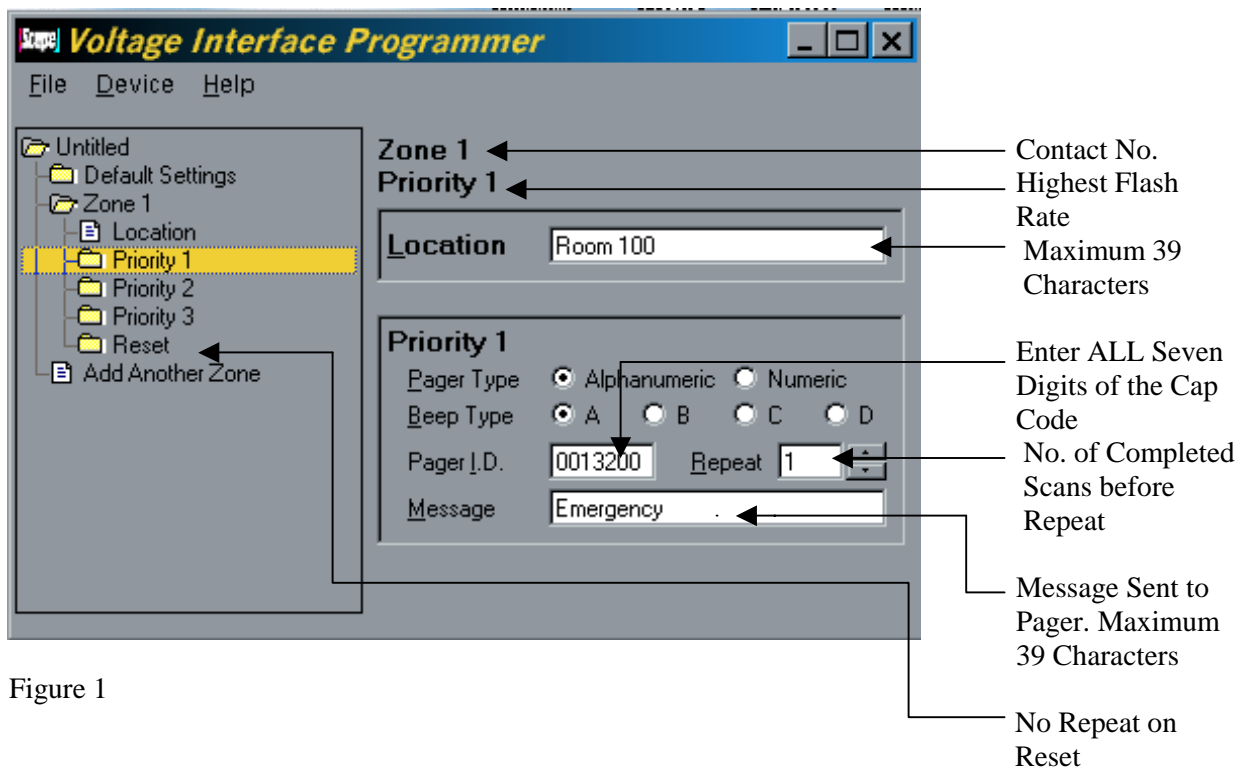


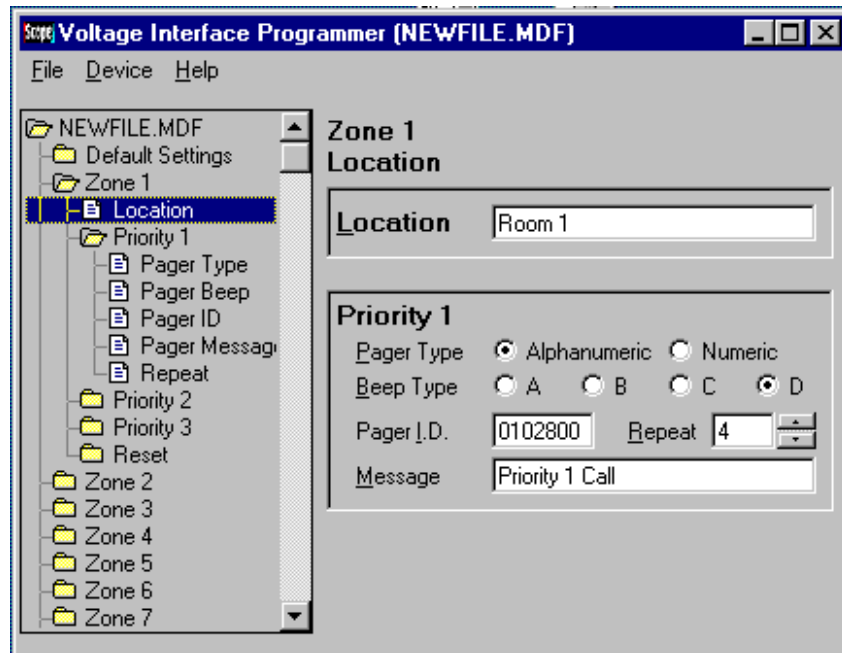
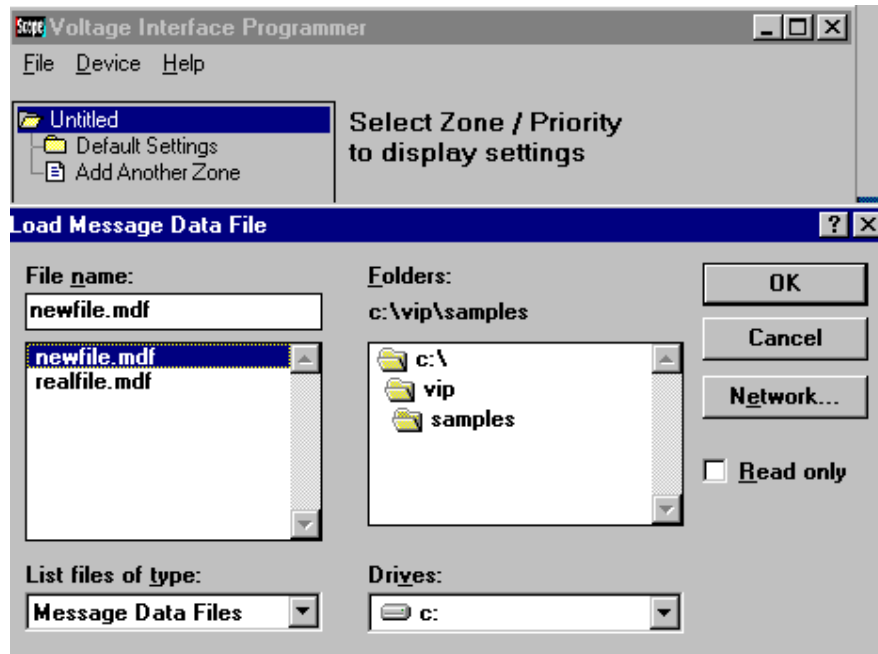
Figure 1

- D. Program interface unit with new configuration
1. Use an existing file stored on disk.
    - a. Select [**FILE**], [**LOAD**]
    - b. Select the directory the file is located in and the file name. (see figure 2)
    - c. Load File. (see figure 3)
    - d. Select [**DEVICE**], [**DEVICE WRITE**]
    - e. The program will transfer the file to the Voltage Interface Unit.

### Repeat Setting vs Repeat Time

<b>10</b>	<b>3 Minutes</b>
<b>15</b>	<b>5 Minutes</b>
<b>20</b>	<b>7 Minutes</b>
<b>25</b>	<b>8 Minutes</b>
<b>35</b>	<b>11 Minutes</b>
<b>45</b>	<b>13 Minutes</b>
<b>60</b>	<b>18 Minutes</b>
<b>80</b>	<b>24 Minutes</b>
<b>100</b>	<b>30 Minutes</b>

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2. Develop new configuration using **DEFAULT SETTINGS**
  - a. Select [**DEFAULT SETTINGS**],
  - b. Enter only **COMMON** data.. (see figure 4)
  - c. Select [**ADD ANOTHER ZONE**].
  - d. Enter the number of Zone(s) { contacts } you will be activating. (see figure 5)
 

**NOTE: IF YOU ACTIVATE LESS THAN 128 CONTACTS, APPLY VOLTAGE ONLY TO THE ONES YOU ACTIVATED. THIS WAY THE OTHER CONTACTS WILL NOT ALARM.**
  - e. The program will enter all default data into each zone.
  - f. Edit each zone to add Pager ID if different, and any corrected messages. (see figure 6)

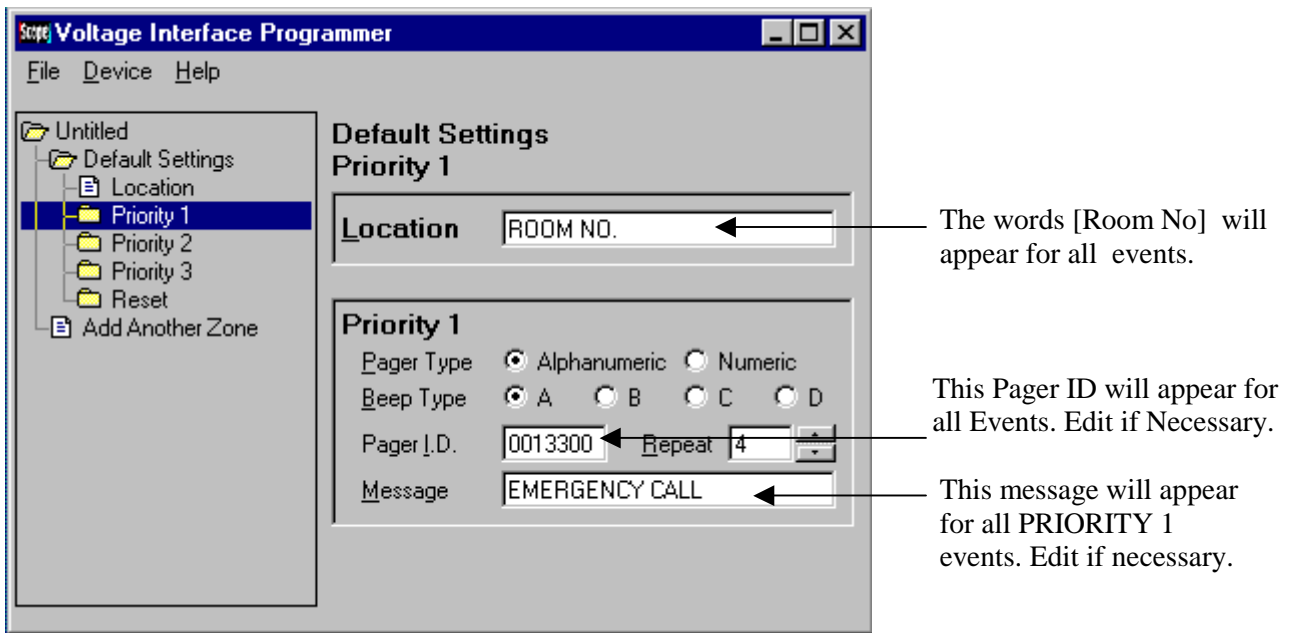


Figure 4

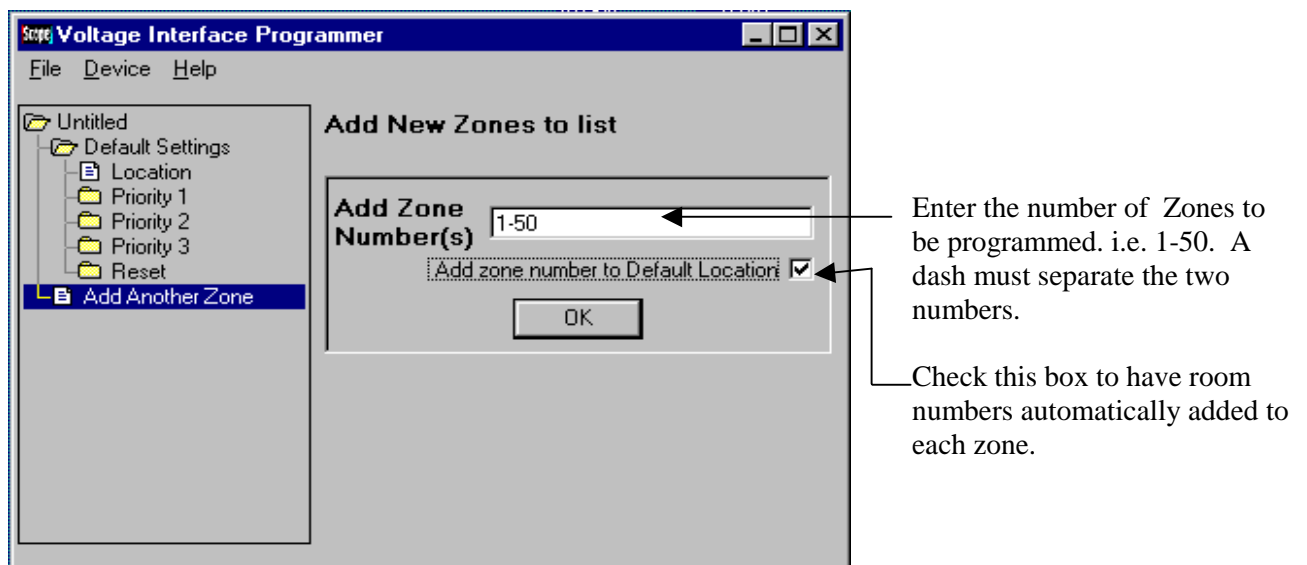


Figure 5

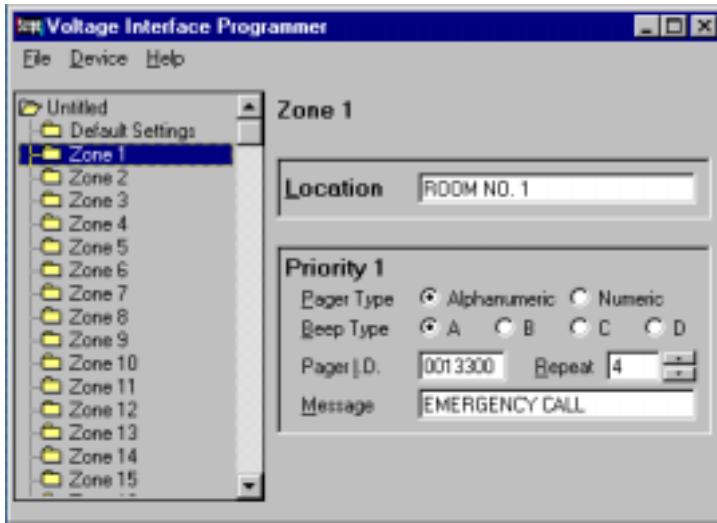


Figure 6

- g. Select [DEVICE], [DEVICE WRITE]. New data will be transferred to the interface unit.
- h. Select [FILE], [SAVE AS] name file. This will save the file for future use.

**Setting for Voltage Present Event Trigger**

Both VSP units can be configured to operate with a nurse call system using **ZERO** to **POSITIVE** pulsing. However at the present time in this configuration you will not have a [REPEAT] function on the Room Call or Standard. When voltage above a positive 12 volts is present would indicate a room call, PRIORITY 3, when the voltage dropped below 12 volts it would be in a reset condition. With this configuration the location of the message text is different. See figure 6 and 7.

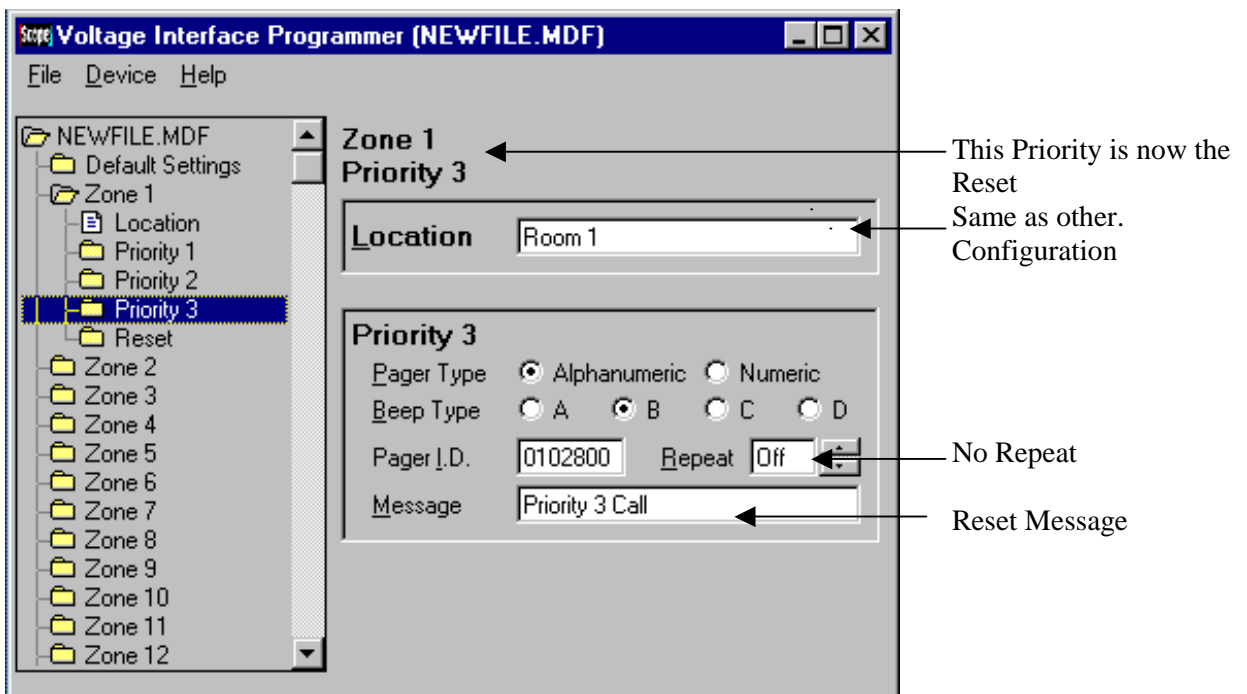


Figure 7

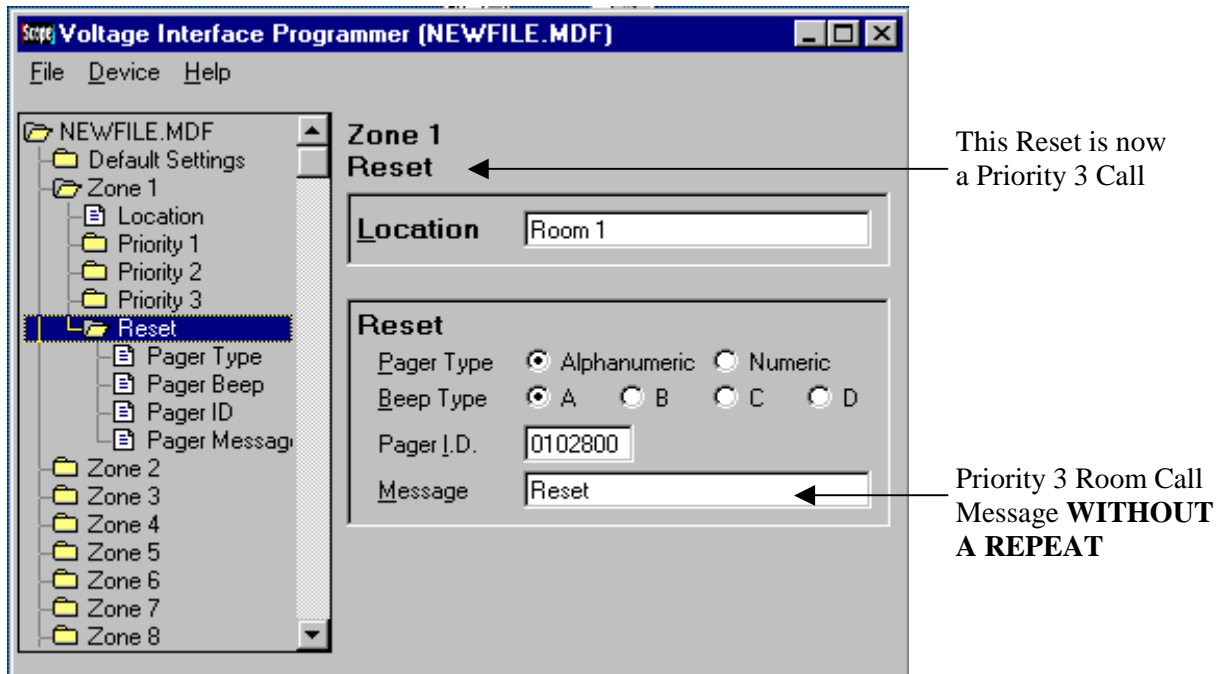


Figure 8

### Calibration

To allow for timing variations and tolerances between products, a calibration routine has been included. This should be carried out in conjunction with the host equipment at the time of installation. This operation requires that the **VSP12860V** or **VSP12824V** be connected to a terminal program .

#### A. Setup

1. Connect unit to a desktop or laptop computer with a terminal program.
2. Set the communication port for 9600 baud, parity of N, 8, 1.
3. Place SW8 on the PCB to [ON].
4. Connect a [**PRIORITY 2 CALL**] slower flashing condition to contact 1.
5. Apply power to the interface unit.
6. [**ATTEMPTING TO CALIBRATE**] will appear on the screen.
7. After the unit adjust the scan period, the message [**CALIBRATION SUCCESSFUL – TURN OFF SWITCH 8 AND HIT ANY KEY TO CONTINUE**] will appear on the screen.
8. Place switch [8] , [OFF].
9. Hit any key.
10. Ensure the Priority 2 Call is still present on input 1.
11. Shortly thereafter this will produce a BATH CALL event to the screen.

This indicates that the system has successfully adjusted itself to the timings present on the equipment to which it is connected. The calibration value is saved to non-volatile memory and will not be lost if power is removed from the system. This procedure should only need to be performed when the equipment is first installed, unless timing changes over time as components age.

## SCOPE Serially Programmable Voltage Interface Unit

THE SERIAL BAUD RATE OF THE VSP128 UNIT IS CHANGED BY THE DIP SWITCH, SW1 AS FOLLOWS:

ALL DIP SWITCHES OFF -----	300 BAUD
DIP SWITCH 1 ON -----	600 BAUD
DIP SWITCH 2 ON -----	1200 BAUD
DIP SWITCHES 1 + 2 ON -----	2400 BAUD
DIP SWITCH 3 ON -----	4800 BAUD
DIP SWITCHES 1 + 3 ON -----	9600 BAUD

WHEN PROGRAMMING SET THE BAUD RATE TO **9600 BAUD**.

DURING PROGRAMMING THE VSP128 IS POWERED USING THE SUPPLIED PTPS12 POWER SUPPLY. THE SCAN LED WILL REMAIN ON DURING THE WRITE OPERATION.