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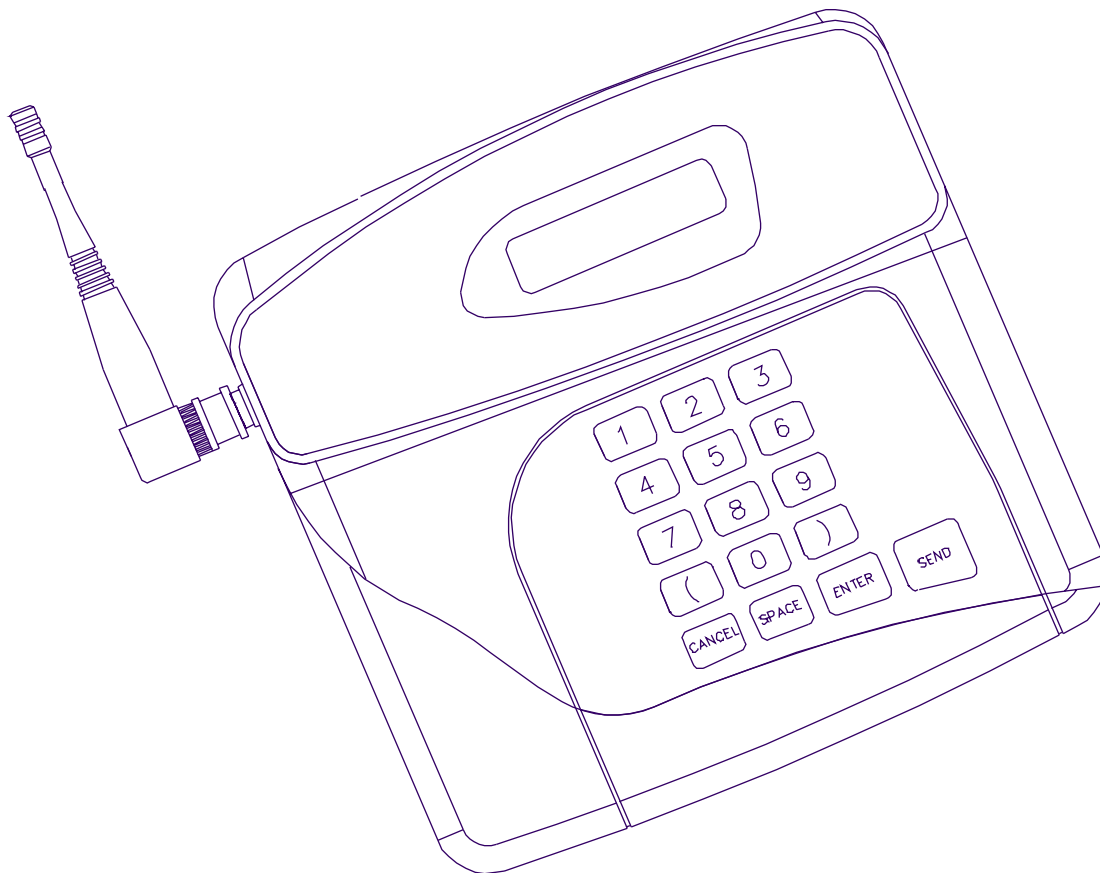
# *DataPage MK2*

## Desktop UHF Radio Paging System

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# Installation & User 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.

### ***Licence***

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 centres at least once a year.

### ***Literature***

Scope 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.

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## DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

Contents of this box:

DataPage Mk 2 UHF Base Station  
AC Adaptor  
Internal Antenna  
Jack plug, Locking, 3.5mm (2 off)  
Manual  
Telephone interconnect lead (models NDPMF and NDPLP only)

Supplied separately, to order:

Numeric Display Pagers  
Optional External Aerial/Coaxial Cable (See Section: Other aerials)

***Before attempting to use this equipment, please read the instructions carefully.  
WARNING ! Operating the system without an antenna can cause extensive damage.***

Base Equipment make and model:           **DataPage MK2**  
Transmitter FCC ID:                           **JRNUSAECOLINK**  
Transmitting Frequency:                   **457.575 MHz or 457.550MHz\***  
Effective Range:                               **Up to 1 mile with standard aerial♦**

\*or as specified on separate configuration sheet

♦optional external aerials and amplifiers available for greater range

### **Description:**

Your DataPage Mark 2 is supplied in one of six configurations:

1) NDPUSA, the basic model, provides keyboard entry of data for message transmission. Additionally, two volt-free (dry) contacts are provided for sending pre-programmed messages. These contacts can be programmed for normally open, normally closed or change of state operation (see page 3, Dry Contacts).

2) NDPMFUSA: as above, with the addition of an interface suitable for connection to an internal telephone system that is driven by DTMF tones i.e. all internal telephones on the internal exchange must be capable of sending dual tone multi frequency signals (DTMF) from their own keypads to the extension socket selected to operate the paging system. The vast majority of PBX telephone exchanges operate in this way.

3) NDPLPUSA: as above, but for connection to hybrid systems that use four wire telephones and their own proprietary digital signaling protocol. In most cases, these systems will not be able to send DTMF tones from all internal telephones to the selected internal two-wire extension socket. The NDPLP model is therefore configured for connection to a spare external line port by way of the AB wire. The telephone exchange must then be programmed such that this line port is not automatically selected when requesting an external line, but

the internal extensions can select this line port either by way of a pre programmed feature button or dialing a discreet code. This line port system will work with all exchanges which will accept that the line port is active from the correct line voltage being present. This system will not work where the exchange requires the line port to receive digital dial tones .

Refer to Section 2: "Telephone Interface" for more comprehensive information.

4) NDPSUSA as per the NDPUSA but supplied with an RS232 serial port

5) NDPMFSUSA as per the NDPMFUSA but supplied with an RS232 serial port

6) NDPLPSUSA as per the NDPLPUSA but supplied with an RS232 serial port

***NOTE! Serial ports can be ordered with various communications and set up protocols! Check before quoting or ordering!***

***Some major points to remember when installing the equipment:-***

- ◆ Never install aerials near to overhead power lines or adjacent to telephone or public address or data communication lines.
- ◆ Avoid, wherever possible, running aerial feeder cables alongside other cables e.g.: telephone and mains.
- ◆ Avoid mounting the transmitter in the immediate vicinity of telephones, exchanges or computer equipment. A few feet can make the world of difference in avoiding interference from the radio frequency generated by the transmitter.

### **Optional RS232 Serial Port**

This can be ordered as an option to enable the unit to be driven by PC's, nurse call systems, fire, security, access control and monitoring systems and many other applications. To ensure that the unit comes suitably equipped for your application you will need to confirm the baud rate and port protocol as well as the communications protocol required to interface with your host equipment. (for more technical information refer to Appendix A)

### **System Operation**

1) Connect the 90 degree aerial to the BNC connector (bayonet twist lock) located at the side of the transmitter. Slide the plastic cover over the connector, engaging the two lugs into the corresponding recesses in the side of the case. This will maintain the aerial in an upright position, which is important for optimizing the range of the transmitter. See Figure 1.

2) Connect the AC adaptor power lead to the socket located at the far right hand rear corner of the base station. See Figure 2. Ensure the two jack plugs are fitted (DC1 and DC2), even if they are not wired to a switch, as removal will trigger the unit when it is first powered up (unless they have been programmed out - see **Program Parameters, section 2: Inputs**)

***Important note:*** Only use the AC adaptor supplied with your system! The use of non-approved adaptors will invalidate all warranty and service.

3) Check that the pagers have their batteries inserted and that they are turned on (refer to the individual pager instruction manuals supplied with the system).

## DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

4) Plug the AC adaptor into a convenient wall socket. When the unit is first powered up the system will display the following screen for a few seconds:

SCOPE MARKETING  
DataPage Vx.xx

Followed by:

ENTER PAGER No:  
>

The flashing cursor invites you to enter a pager number (this can be any number between 1 and 9,999) after which you must press ENTER for the number to be accepted. Pressing the CANCEL key at this stage will return the user to the pager number prompt to begin again. Pressing the SEND key in place of the ENTER key will transmit a tone only message to the pager using the default beep type .

5) After pressing ENTER, the next screen appears to offer the selection of the beep types. Again, the flashing cursor invites you to enter a selection.

At this point the operator may choose to select a beep type 1,2,3 or 4, or press ENTER without making a selection. This will attach the default beep type to the call. (It should be noted that not all pager types currently carry the transmitter selectable beep type). In the event that your pagers are so equipped, selecting 1,2,3 and 4 will correspond to beep types A, B, C and D respectively. Pressing the SEND key at this stage will send a tone only message together with the beep type selected.

BEEP TYPE (1-4):  
>

6) After selecting the beep type, press ENTER. The screen will now prompt for you to enter a message of up to 20 digits, including [, ] and spaces. Note: the screen will scroll after entering 15 digits.

ENTER MESSAGE:  
>

7) After selecting the message, press ENTER or SEND. The call will now be transmitted to the pager. A confirmation message will briefly appear on the screen.

Sending Message  
Please Wait

Pressing the 'CANCEL' key at any stage of operation and any entry level will immediately revert the unit to the 'ENTER PAGER No:' prompt.

### Dry Contacts

There are two volt-free (dry) contacts available for use with either Normally Open, Normally Closed or Change of State switches (see **Program Parameters, section 2: Inputs**). When either is triggered, the programmed message(s) will be sent to the selected pager (or group of pagers). When used in the Normally Open mode only, the message will repeat whilst in the active state (can be used as a safety mode).

Connection is via 3.5mm locking jack plugs at the rear of the unit (see fig. 2).

Fig. 1 Connecting the antenna and locking cover

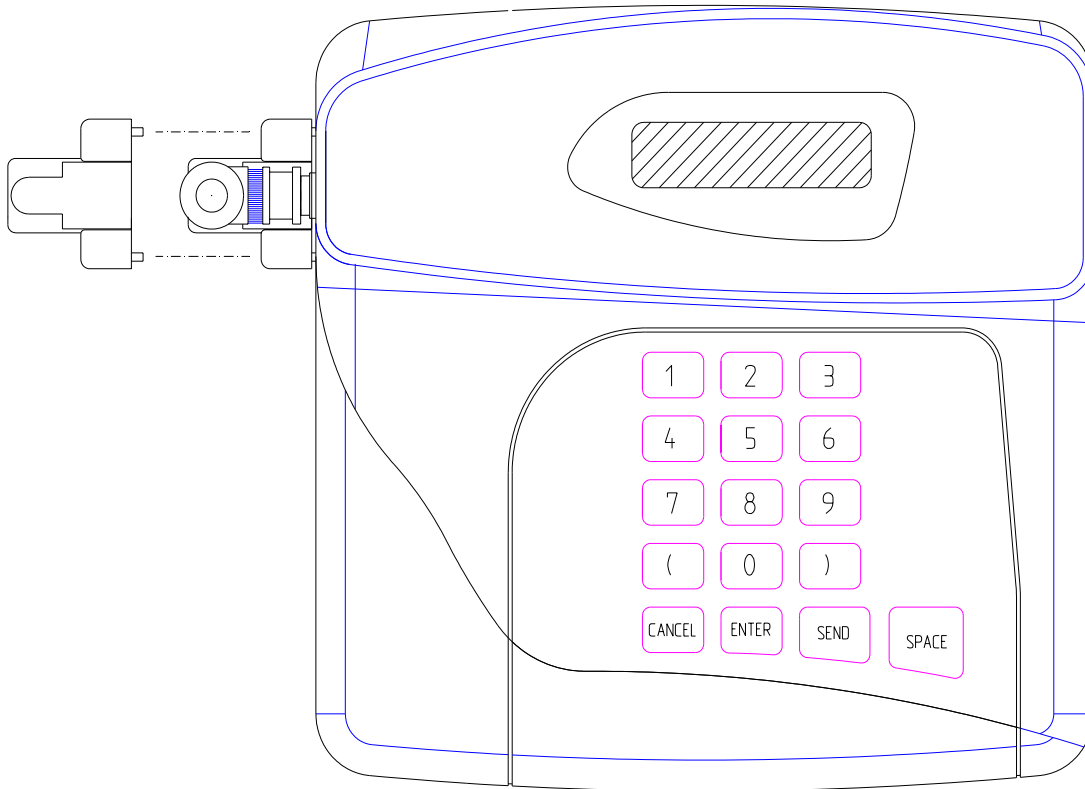
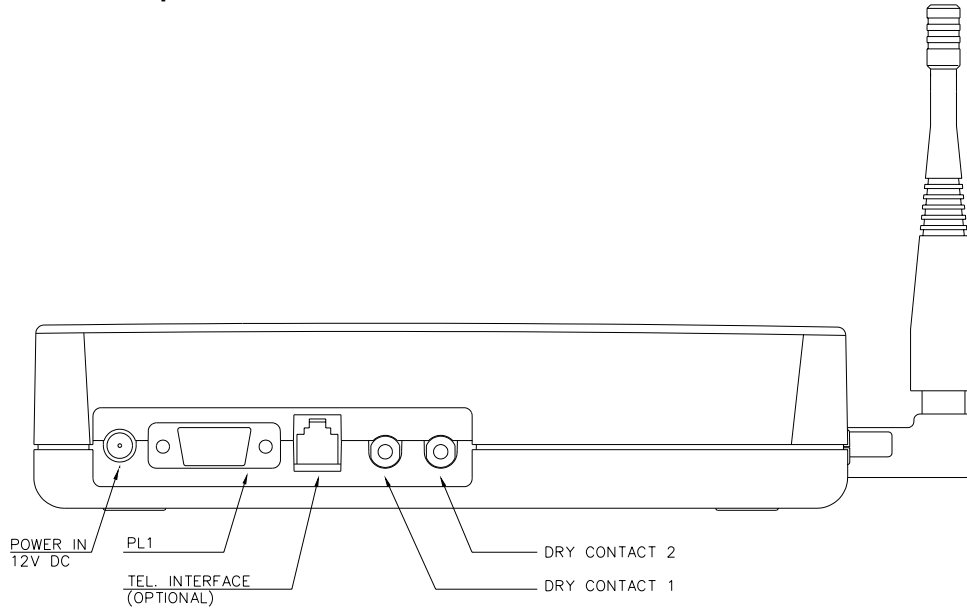




Fig. 2 Connection port detail



**PL1 is an optional serial port which must be specified when the unit is ordered**

## Group Calls

As previously stated, this system will accept pager identities from number 1 through 9,999. Most pagers will accept a minimum of two identities, enabling the pager to respond to selected group calls as well as its own unique identity. Advanced pagers offer multiple identities, again, enabling one to be reserved for its own unique identity and then for the pager to belong to a selected number of groups of pagers which can be called collectively by entering just one identity or number. Sometimes the requirement is to have a global call and upon the entry of this specific number the system will call all pagers at one time. As group calls are created from single pager identities, any number of groups can be constructed to suit individual customers requirements. The default **Global Group Call number is 9999**.

## Performance

The system will normally cover 95% of all range requirements with the use of just the internal antenna. The helical quarter wave antenna supplied with the system can provide ranges of up to half a mile free space and will normally cover industrial buildings of considerable size. This short helical wound antenna can be replaced with a straight quarter wave which can provide ranges in excess of one mile in free space and considerably enhance the units performance in industrial or commercial environments. Position the unit on the opposite end of the desk to computers, telephones and intercoms etc. to minimize the potential for cross interference.

Also, remember that the capability of your system will be affected by:-

Foil backed wallboard, metal mesh, wire reinforced glass, metal sheeting, large mirrors, suspended ceilings, lift shafts etc. These can all reflect and thereby reduce the signaling capability of the transmitter. A little forethought prior to installation, coupled with a few tests, can normally avoid most of these problems.

## Other Aerials

The range and performance of this equipment can be improved by the addition of more efficient aerials\*. These can be installed either inside or outside the building and are connected to the transmitter with 50 ohm coaxial cable. An amplifier is also available for very large sites\*. Consult your dealer for further details.

A glass mount is available to install on the inside of a suitable window which can boost range, especially if its required in one direction from the building.

The center fed half wave dipole measuring approximately 300 mm from tip to tip, will provide excellent all round local signaling. This can be mounted either inside or outside the building and is available in either a light weight or heavy duty stainless steel design.

\*Subject to license conditions.

Collinear aerials are also available for external application and will, when elevated, boost overall range with a slight loss to some local signals.

Pre-terminated coaxial feeders are available for 5, 10 or 15 metre requirements. High frequencies can equate to high power losses. Always use the best quality cable. RG58 is only acceptable on cable runs of up to 5 meters. We recommend RG213 or equivalent on greater lengths. If in doubt consult your dealer. Coaxial cable intended for TV satellite or CCTV installations is normally 75 ohm and therefore totally unsuitable and can cause severe transmitter damage.

## Program Parameters

The standard models are factory pre-set and should not under any circumstances be adjusted by the customer. The factory settings can be viewed for the purposes of verification when ordering additional components etc.

The system parameters are protected from accidental change by password control. To enter the system type:  
( 72765 then press ENTER

This is the default password. To alter this to a password of your own choice, see **5: Changing the Password**

You can escape from this program at any time by pressing CANCEL. Upon acceptance of the password the screen will change to :

```
1: Setup  2: Inputs  
3: Phone 4: Serial
```

### 1: Setup

Press key 1. The screen changes to:

```
BASE PAGER ID:  
>0090000
```

*(The number shown is just an example)*

To change the base pager ID enter the new number and press ENTER. In the event that you make a mistake press CANCEL and start again.

After pressing ENTER, the screen display will change to prompt for the default beep type:

```
DEFAULT BEEP:  
> 1
```

## DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

You may enter a number in the range 1-4 which will correspond to the pager beep codes A, B, C, D respectively. Note, not all pagers are equipped to respond to transmitted beep codes. Press ENTER to confirm or CANCEL to return to the start.

After pressing ENTER, the screen display will change to prompt for the transmission data speed:

TRANSMIT SPEED:  
> 1200 bps

Press key 1 to select 512 baud, key 2 to select 1200 baud or key 3 to select 2400 baud. Press ENTER to return to the programming menu.

### 2: Inputs

Press key 2. The screen changes to:

INPUT COUNT 0-2  
>

Select the number of dry contacts required: either 0, (none), 1 (DC1) or 2 (DC1 and DC2).

After pressing ENTER, the screen will change to:

ACTIVATE STATE:  
: Normally Open

Pressing key 1 will display **Normally Open**  
Pressing key 2 will display **Normally Closed**  
Pressing key 3 will display **Change of State**

After making your selection, press ENTER to store.

Display will change to:

TRIG. TIME 0-15:  
>

This indicates the time that the contacts must remain in the active state to effect a trigger. A value of between 0 and 15 can be entered, which represents blocks of 0.25 seconds (approximately). Therefore, a value of 14 would equate to 3.5 seconds.

After making your selection, press ENTER to store; display will change to:

REPT. TIME 0-15:  
>

For added safety, when in Normally Open Mode the message is repeated whilst the contact remains in the closed state. This screen allows you to select the time gap between each repeat transmission. Each unit represents a block of 10 seconds.

After making your selection, press ENTER to store; display will change to:

INPUT 1 PAGER  
>

## DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

Type in the pager no. which you wish to activate when contact 1 is triggered.

After making your selection, press ENTER to store; display will change to:

```
INPUT 1 TONE:  
>
```

Select a number between 1 - 4 (represents bleep types A,B,C,D) to set the bleep type.

After making your selection, press ENTER to store; display will change to:

```
INPUT 1 MESSAGE:  
>
```

Type in the numeric message you wish to appear on the pager. Press ENTER to store. Screen will then run through the same sequence for contact no. 2 (if selected). When complete, screen will revert to the main programming menu.

### 3: Phone *(refer also to Section 2: Telephone Interface)*

*This section is only applicable to models: NDPMF, NDPLP*

The telephone interface can be programmed through the keyboard as follows:

Press key 3. The screen will change to display:-

```
RINGS TO ANSWER:  
>1
```

Select a number in the range 1-9 and press ENTER. This will define the number of rings before the system will pick up the line. Pressing CANCEL will abort the change and return you to the programming menu.

Note, this value refers to the NDPDTMF model only, as the NDPLP version does not ring, but merely picks up the line.

After pressing ENTER, the display will change to:

```
INACT'V TIMEOUT:  
> 10
```

*(The number shown is just an example)*

Enter a number in the range 2-99 secs. This will adjust the inactivity time (i.e. no button presses) after which the line will be dropped.

After pressing ENTER, the display will change to:

```
ANS TONE DELAY:  
>2
```

This number must fall within the range of 1-99 (each unit = 0.1 sec approx.). This will adjust the delay time from the moment the line is picked up to the time that the sign on tones are generated.

## DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

### 4: Serial

This connection is for units supplied with a serial port enabled and must be specified when ordering. It will not therefore be accessible to the user for systems supplied in the standard configuration.

Press key 4. This sets the serial data communication speed between the transcoder and host. The screen will change to display:

BAUD RATE (1-8)  
9600

Enter a number in the range 1-8. 1=300, 2=600, 3=1200, 4=2400, 5=4800, 6=9600, 7= 19200, 8=38400 baud.

After pressing ENTER, the display will change to:

PARITY (1-3):  
NONE

Enter a key in the range 1-3. 1=None, 2=Odd, 3=Even.

After pressing ENTER, the display will change to:

DATA BITS (7-8):  
>8

Enter a number in the range 7-8 to set.

### 4: Serial

After pressing ENTER, the display will change to:

STOP BITS (1-2):  
>1

Enter a number in the range 1-2 to set.

After pressing ENTER, the display will change to:

Serial Port  
Set OK.

The default setting of the serial port is 9600, N, 8, 1

When supplied in the standard configuration, display will read:

Serial Port  
Not Active

### 5: Changing the Password

Whilst at the main programming menu screen, press (

Screen will change to:

ENTER PASSWORD:  
?

Type in current password and press ENTER.

Screen will change to:

NEW PASSWORD:  
?

Type in new password and press ENTER.

Screen will change to:

CONFIRM PASSW'D:  
?

Re-type the new password and press ENTER.

Screen will now read:

Password  
Updated OK

The new password is now successfully stored.

To return to the pager entry screen press ENTER or CANCEL when at the main programming menu.

### ***Problems and Fault Finding***

Check that there is power at the mains socket.

Check that the pagers are at least 3 meters from the transmitter and aerial. Under certain conditions it is possible to flood the pager receivers and corrupt the data received.

Check that the pagers have the battery installed with the correct polarity and are correctly powered up.

Check that the aerial is correctly installed.

Check the Base ID on the password menu matches the system data. Check the transmission baud rate matches the system data.

Serial Port: check and re-check the data cable connections. This, together with an incorrect signaling format, result in more faults than any other problem. Check the port configuration on the password menu.

Check that the communications Baud rate set on the host matches the system.

Telephone Interface: check the cable connections. Check the port is active on a 2 wire DTMF system with the aid of a standard telephone. Check the base ID and transmission baud rate on the password menu.

**Section 2**

**Telephone Interface (models NDPMFUSA and NDPLPUSA only)**

**Overview**

**IMPORTANT!** This unit must not under any circumstances be connected direct to the public telephone network. It is only intended for indirect connection to an in-house telephone exchange. Any attempt to operate the unit other than as intended will invalidate all equipment warranties and may result in damage to the equipment, the telephone network or both.

The Scope digital paging interface can be used to transmit text or numeric messages from any telephone connected to your exchange, direct to the pocket of the individual being paged. There are two types of interface available, these cover all types of hybrid and PBX systems with DTMF capability. These can be supplied in two basic configurations:

1) ---LP. This interface connects to an external line port, it is supplied with a 50 volt supply to provide the required voltage to the line port. This unit will work with any telephone system that can send DTMF to the assigned port, without receiving a dial tone.

2) ---MF. This interface is only intended for use with systems dedicated to two wire ports. Access is gained by dialing the extension number, the ringing will alert the system which will pick up the line. Use of this interface with hybrids of any sort is not recommended and we cannot provide any support for such applications!

Both of these interfaces contain line voltage isolation devices. There is electrical isolation between the paging logic and power supply, and the exchange side of the apparatus.

**Installation:**

For interface type LP, the A and B wire of the external line port are connected to the inner pair of wires on the cable provided.

For the MF interface, use the lead provided to plug into a standard 2 wire extension socket as for any (SLT) internal telephone.

**Operation:**

When the system leaves the factory, it will have been programmed with a default configuration which sets up the system as follows:-

Number of pagers:	RANGES SET AS ORDERED
Default bleep type:	A
Password:	72765
System Identity:	REFER TO ORDER DOCUMENTATION

The system parameters can be changed and re-programmed via the keyboard, if required (see previous section: **Program Parameters, 3: Phone**).

Your system has been programmed to be fully functional before leaving the factory, there is no need to change any settings if you are happy with the factory settings.

**Section 2**

**Telephone Interface (models NDPMFUSA and NDPLPUSA only)**

**Note: in the following pages describing the operation and of the system, the symbol \* is used to denote the STAR key on your telephone, which must be pressed wherever the \* symbol appears in the text. On some telephone systems, the # key can be used instead and may be preferable in some instances. It is advisable to check ALL types of phone used on your exchange to decide which key works best with each phone type.**

**Using the system**

**Numeric pagers**

STEP 1:- CONNECT TO SYSTEM

DIAL PAGING SYSTEM EXTENSION NUMBER OR LINE PORT  
WAIT FOR SIGN-ON TONES (THREE NOTES ESCALATING LOW TO HIGH)

STEP 2:- ENTER PAGER NUMBER (OR GROUP NO.) TO BE CALLED

TYPE (PAGER NUMBER)  
TYPE \* (or # see page 10)  
WAIT FOR ACCEPTANCE TONE OR PROCEED (SINGLE MID TONE)

STEP 3: ENTER NUMERIC MESSAGE TO BE SENT COMPRISING 0,1,2,3,4,5,6,7,8,9.

TYPE (NUMERIC DIGITS MAX 20)  
TYPE \* (or # see page 10)  
WAIT FOR SIGN OFF TONES (FOUR TONES HIGH,LOW,HIGH,LOW)  
REPLACE HANDSET

REJECTED DATA IS SIGNALLED BY A SINGLE LOW BEEP, RE-ENTER DATA FROM STEP 2 OR REPLACE HANDSET, WAIT FOR TIME OUT AND START AGAIN.

**Alphanumeric pagers**

Some alphanumeric pagers can be used with this system when programmed to accept a numeric word format to retrieve pre-defined alphanumeric messages held within the pager itself

FUNCTION:- CONNECT TO SYSTEM

DIAL PAGING SYSTEM EXTENSION NUMBER OR LINE PORT  
WAIT FOR SIGN-ON TONES (THREE NOTES ESCALATING LOW TO HIGH)

FUNCTION:- ENTER PAGER NUMBER OR GROUP TO BE CALLED

TYPE (PAGER NUMBER)  
TYPE \* (or # see page 10)  
WAIT FOR ACCEPTANCE TONE OR PROCEED (SINGLE MID TONE)



**Section 2**

**Telephone Interface (models NDPMFUSA and NDPLPUSA only)**

FUNCTION: SEND TRIGGER FOR PRE-DEFINED MESSAGE. Select one of the pre-defined messages from the table supplied with your pager manual.

TYPE \* (MESSAGE NUMBER)  
TYPE \*  
TYPE (NUMERIC MESSAGE TO BE ADDED ON TO THE PRE-DEFINED MSG)  
TYPE \*  
WAIT FOR SIGN-OFF TONES (FOUR TONES HIGH,LOW,HIGH,LOW)  
REPLACE HANDSET

Rejected data is signaled by a single low beep, re-enter data from step 2 or replace handset, wait for time out and start again.

**Advanced features**

When proficient at using the system, you can speed up your paging by not waiting for the prompt tones, simply enter the pager number message and listen for the sign off tones. If you replace the handset prior to hearing the sign off tones the page will be aborted. It is possible to send the page without waiting for the sign on tones, this may well require the delay before sending the sign on tones to be lengthened (see programming section on 'SET TIME BEFORE SIGN-ON TONES' ). To achieve this facility you must send valid DTMF tones to be received by the system before the sign-on tones are generated. It is therefore possible to extend the sign-on delay past the inactivity timer, which effectively means that the sign-on tones will never be received.

**Speed dialing**

It may be possible to effect some speed dial functions with your telephone system, however telephone exchanges vary as to the way in which they perform depending upon their own internal protocol. With certain systems you may have to establish an audio connection with the port prior to sending the message. With other systems it may be possible to program pauses between accessing the port, sending the pager number and sending the message. If this is possible, it will be necessary to extend the 'TIME BEFORE SIGN-ON TONES' to allow valid data to be sent before receiving the sign-on tones.

**Tone only paging**

Numeric and alphanumeric pagers can receive tone only calls by entering \* in place of the message.

## Appendix A

### Industry Communications Protocols

This section deals with the serial data formats commonly used within the On-site Paging Industry. Scope has its own proprietary protocol, but can for certain systems provide a number of other industry-recognized protocols.

**Warning!** Check the protocols available for any given unit before quoting for a specific application. Maximum permissible message lengths will apply. Numeric will always limit to 20 digits. Alphanumeric will depend upon the product in question or the software issue employed. Check before quoting or ordering.

### Scope Protocol

#### Numeric Pagers

Example serial message string transmitted from the host to the transceiver:-

```
N0012300A1234567890<CR>
```

The 'N' informs the transcoder that this message is destined for a Numeric pager. Any data not preceded by this will be ignored. The maximum message length within the characters allowed for the Numeric transmission format is 20.

Next follows the 7digit pager identity number. All seven digits must be used.

The letter following the identity is the beep type of which there are four valid characters, A, B, C or D.

Next follows the message to be transmitted, which can include:

0-9, space, -(hyphen), 'U' (letter U for 'U'rgent), [,] open/close square brackets, (open square brackets can also be used to identify the letter 'C' for 'C'ancel). The final character sent is 'carriage return' <CR>, which is not transmitted but represents the end of message marker.

On sending a message to the unit in the correct format the transcoder will immediately recompose the string into the POCSAG format and transmit the same at the pre-programmed baud rate. The time taken to transmit the message is dependent upon the pager baud rate and the length of the message string.

#### Alphanumeric Pagers

Example serial message string:-           A0012300A This is a message <CR>

The data format is exactly as for numeric pagers, except that the recognition character at the front of the message is changed from an 'N' to an 'A' and the data can include the ISO 646 character set (full alphabet including both upper and lower case). The maximum message length will be from 512 to 2,000 characters depending on the software issue installed.

Transmission baud rate: in the above example, the default baud rate is sent.

To change the transmission baud rate in a message string, placing a letter "N" after the "A" will alter it to 512 baud. Placing a letter "F" after the "A" will alter it to 1200 baud.

The default setting for transmission to pagers on Scope transmitters is 1200 baud.

## Appendix A

### **Comp 2 or People Finder Protocol**

The system must be programmed with valid pager types or ranges. The system can be configured as Numeric, Alphanumeric or mixed. In the case of mixed systems the ranges must be defined at the time of ordering within the overall range 1 through 9,999. E.g. this could be ID 1 to 1000 reserved for numeric and 1001 to 9,999 for Alphanumeric. Remember that the range selected must allow for Group Calls as well as individual pager ID's. The reason for the range requirement is due to the change in the transmitted data word format under the POCSAG standard, coupled with the fact that the serial data provided by the host under this format does not allow the transcoder to differentiate between numeric and alphanumeric data formats.

Example Numeric serial message string transmitted from the host to the transceiver:-

```
1234A<CR>1234567890U[-] <CR>
```

The data starts with a one to four digit number followed by a beep type, (A,B,C or D) and then a 'carriage return' <CR>. This is then followed by the message (20 digits max) and another 'carriage return' <CR>.

On sending a message to the unit in the correct format the transcoder will immediately recompose the string into the POCSAG format and transmit the same at the pre-programmed baud rate. The time taken to transmit the message is dependent upon the pager baud rate and the length of the message string.

Example Alphanumeric serial message string:-

```
1234A<CR> This is a message <CR>
```

The sequence is exactly the same as for Numeric data except that the information transmitted can include the ISO 646 character set (full alphabet including both upper and lower case).

Comp 2 can also provide message prioritization on certain Scope systems equipped with message buffering. This utilizes the A,B,C,D beep type to set the level of priority. Certain Scope products will also accept this format without the beep type included in the message string. This will invoke a default beep type being inserted by the transcoder.

### **Comp 1 Protocol**

This is a simplistic interface which accepts a serial data string from the host and adds a single cap ID or address to the string enabling it to be transmitted to pagers globally.

Example Alphanumeric serial message string:-

```
This is a message <CR>
```

On receiving a valid message string the transcoder will immediately add the pre-programmed ID and beep type, recompose it into the POCSAG format and transmit the same at the pre-programmed baud rate. The time taken to transmit the message is dependent upon the pager baud rate and the length of the message string.

### Appendix A

#### **TAP - (T)elocator (A)lphanumeric (P)rotocol:**

TAP is commonly used in the wide-area paging industry, generally between remote transmitting stations via a modem. Its' advantage lies in the two-way nature of the communications link, and using checksums, the ability to request retransmissions in the event that an error is detected by the receiving station.

There are two optional parameters: the **password** and a **sign-off text message**, and either or both of these can be included.

Scope TAP implementation adheres strictly to the Version 1.8 specification, and will allow both of these parameters to be defined or left out. If a password is not programmed into the system, it will not expect one, the same goes for the sign-off string, if the entry is blank it will not appear.

A typical TAP transaction is as follows:

- 1 The caller makes sure the receiving station is connected by requesting a response.
- 2 The receiving station responds with a request for the identity of the caller, in this case the enquiry consists of the text string 'ID='.
- 3 The caller then sends a string to identify the protocol it intends to use, and a password if this is required.
- 4 If the receiving station accepts the response and password it acknowledges the fact and then requests the sender deliver the message it is holding for transmission.
- 5 The sender transmits the pager number and text message to deliver, and attaches a checksum based on the contents of the data transmitted. (see example below).
- 6 The receiving station computes the checksum from the received data and if it matches the appended checksum of the received data, acknowledges the fact or requests a re-transmission of the data if this is not the case.
- 7 The sending station will then either request another message block is transmitted, or indicate to the remote station that the transaction is complete.
- 8 Once all the data has been sent, and the sending station indicates this fact, the receiving station will optionally send a sign-off message, and instruct the sender to terminate the link. If no sign-off message is included, only the link termination command is issued.

On a modem-connected link, this would be the point at which the line is dropped by both sides. On a permanent link, the sender and receiving station return to their normal handshake exchanges to verify the link, or cease communication until another transaction is required.

These steps are normally limited to a set number of attempts, due mainly to the requirement that a telephone or modem link should not be maintained indefinitely. For this reason there are also time constraints which specify how long to wait for a given response.

These 'retry' numbers and time limits are the other 'flexible' options in the TAP protocol. The Scope system allows the installer to specify these values for themselves to suit the application to which the protocol is applied.

# DataPage MK2 (USA, ECO) Desktop UHF Radio Paging System

## Appendix A

### Example of typical Command-Acknowledge Sequence:

<p>CALLER</p> <p>&lt;CR&gt; every 1 second unit.....</p> <p>&lt;ESC&gt;PG1&lt;CR&gt;</p> <p>&lt;STX&gt;1&lt;CR&gt;TEST&lt;CR&gt;&lt;ETX&gt;190&lt;CR&gt;          ("TEST" is the message)          ("190" is the Checksum)</p>	<p>RECEIVING STATION</p> <p>ID=</p> <p>&lt;ESC&gt;[p&lt;CR&gt;</p> <p>Processing-Please Wait&lt;CR&gt;&lt;ACK&gt;&lt;CR&gt;</p> <p>+++,,,,,,,,,ATHO&lt;CR&gt;          Carrier Drop</p>
--	---

### Example Checksum:

The following table shows an example of a complete block containing a correct checksum which is :  
 <STX>123<CR>ABC<CR><ETX>17;<CR>

STX	*	000	*	0010	*
1		011	*	0001	
2		011	*	0010	*
3	*	011		0011	*
CR	*	000	*	1101	*
A	*	100		0001	*
B	*	100	*	0010	*
C	*	100	*	0011	*
CR		000	*	1101	*
ETX	*	000	*	0011	*
	*	1 0111		1011	
	*	1 7		; *	

Checksum = 17

\*\*\*\*\*