



Installation Instructions for NC365/A/AT NC366A/AT NC368A/AT

Tek-PAGING™ On-Site UHF Paging System

IL671
Section C
Rev. 9-03/2009

OVERVIEW

TekTone®'s digital paging system can be used to transmit both text and numeric messages directly to individual pocket pagers, or to entire groups of pagers. Information is input using one to three RS232 serial ports, depending upon model. The unit can also be used in conjunction with an optional telephone interface, thus enabling any telephone within the building or complex of buildings to access the paging system.

IMPORTANT SAFETY INFORMATION

TekTone® 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:

1. Mechanical shock
 2. Excessive humidity or moisture
 3. Extremes of temperature
 4. Corrosive liquids
- Do not operate this equipment with the antenna disconnected. Doing so may severely damage the transmitter.
 - This equipment is designed for indoor use only, 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.
 - Do not obstruct any slots or openings in the product. These are provided for ventilation to ensure reliable operation of the product and 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.

WARNING!

Alteration or modification of 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 a qualified and licensed person as defined by the FCC Rules and Regulations. Operation of altered equipment can result in fines, imprisonment, and/or confiscation of such equipment.

LIABILITY

TekTone® does not accept any liability for any damage or injury howsoever resulting from 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.

EQUIPMENT APPLICATIONS

It is the user's responsibility to determine the suitability of this system for any given application. TekTone® cannot provide specific advice, since each application requires independent evaluation. TekTone® has no control of the use and application of the frequencies issued by the FCC. Some licensed equipment may have greater protection than other equipment operated on a FCC License Exempt basis.

EQUIPMENT TESTING

Conduct range tests at least once a week; more often when critical criteria apply. This involves testing the unit past the limit of its required working range, so as to ensure a measure of safety. TekTone® suggests keeping a log of all the test dates and the information gathered, together with the battery change data and service records.

The frequency of the tests required will vary between applications. If a pager has been dropped or is worn by a person involved in an accident, test the unit again before re-use. It must be stressed that the physical range tests are essential and any construction work or movement of plant or equipment could alter the signalling capability of the unit.

LITERATURE

Copyright © 1998–2009. No part of this document may be photocopied or reproduced in any form without the express written permission of TekTone® Sound & Signal Mfg., Inc.

TekTone® has a policy of continual improvement, and therefore reserves the right to modify or change the specifications without prior notice. While every possible care has been taken in the preparation of this manual, TekTone® shall not be liable for technical or typographical errors or omissions contained herein, nor for incidental or consequential damage arising from the use of this material.

LICENSE

You are cleared to use this equipment within the USA under a license assigned to the exclusive importer, PIPs Holdings Inc., File Number 0002168163, issued on 5/21/2005 which expires on 06/26/2015. Certain restrictions apply in respect to output power and antenna installations. If you have any questions, contact TekTone® before installation and use. Alternate 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 Government Printing Office, GPO bookstore or FCC Office.

SPECIFICATIONS

Manufacturer:

Scope Marketing (Communications UK) Ltd.
Totnes, Devon, England

Operating Frequency: 457.55MHz
RF Power output: 500mW
Deviation: 4.5kHz/1200Baud
Stability: ±2.5PPM over a range of 14°–132° F
Input Line Voltage: 115 Volts AC, 60Hz
Operating Voltage: 13.8 Volts DC
Current Consumption: 50mA standby,
300mA transmit (500mW)

PERFORMANCE

The system will normally cover 95% of all range requirements using the base station connected antenna, on buildings of 20,000 square feet or more. Greater ranges can be achieved by using an externally mounted antenna (subject to license conditions). Contact TekTone® prior to any antenna change.

SERVICE

If your ConneXions interface unit or pagers require service, return them to TekTone® at the address listed in the front of this manual. Prior to returning the equipment, you must call TekTone®'s Sales Department at (800) 327-8466 and obtain a return authorization number (RMA number). **No returns will be accepted without an RMA number.**

UNPACKING

Carefully unwrap and inventory the pager transmitter and all components as shown below. If anything is missing, notify TekTone® immediately.

- ConneXions transmitter
- ¼ wave antenna
- Serial cable for RS232 operation
- 12 foot AC power cord
- Installation kit
- Installation instructions
- Pagers (type and number ordered)

HARDWARE LOCATION

Before placing the hardware in any given location, consider the range of operation that the installation will require. The standard transmitter can quite easily provide ranges of up to one mile or more, and will provide excellent propagation on most industrial sites—covering a considerable area with just the ¼ wave antenna (BNC terminated) connected directly to the unit.

For coverage of very large sites, or where exceptionally difficult operating conditions exist, it may be advantageous to install an external antenna. Installing the transmitter on the second or third floor of a building will usually boost overall range. However, horizontal range is not always required so much as propagation through a multi-story building. Here it may be more useful to use a small external antenna mounted outside the building at half the building height. Sometimes range is required more in one direction than in another: moving the antenna to one side of the building can provide a bias in the required direction, which may overcome the range difficulties. When using a remote antenna, remember to use a low loss 50-ohm coax cable from the transmitter to the antenna. Do not use cabling for CCTV or TV satellite; this type of cable is normally 75 ohms.

Important: Coaxial feeds over 16 feet (5 m) must employ low loss 50-ohm coax. We normally recommend feeds be no more than 50 feet (15 m) for standard applications. However, we suggest you contact our technical department if other considerations prove this to be impractical.

A further consideration is the distance between the transmitter and the source of the data feeding the transmitter. With a standard RS232 serial interface, data cables should not exceed **50 feet** (15 m). The cables must be screened/shielded and must be kept clear of sources of induced magnetic or electrical noise. If distances of over 50 feet (15 m) are required, additional drivers or amplifiers must be installed at both ends of the data link.

Remember these important points when installing equipment:

1. Never install antennas near or adjacent to telephone, public address or data communication lines, or overhead power cables.
2. Avoid, wherever possible, running antenna coax alongside other cables.
3. Avoid mounting the transmitter in the immediate vicinity of telephone exchanges or computer equipment.
4. Remember that the performance of the system will be affected by the type of material the unit is mounted on and by its surroundings.
5. The circuit boards within this equipment may be harmed by Electrostatic Discharge (ESD). Installers must avoid touching the circuitry wherever possible, and must ensure that adequate antistatic procedures are adhered to at all times (earth grounding with wrist straps, etc.).

This transmitter will be adversely affected by the following materials, if it is mounted on or near them:

- a) Foil backed wall board
- b) Metal mesh, or wire reinforced glass
- c) Metal sheeting, large mirrors or suspended ceilings
- d) Elevator shafts

All of the above can reflect radio waves and thereby reduce the capability of the transmitter to perform its desired functions.

6. **Warning!** Never transmit without an antenna attached to the transmitter
7. **Warning!** Carefully check the data pin connection information in the **Installation** section and **Figures 3, 4, 5, 6 and 7** prior to installation. Damage caused by incorrect connection is the responsibility of the installer!

INSTALLATION

The following procedure must be followed when installing the ConneXions paging system. Ensure you have taken into consideration all the information in the **Hardware Installation** section before selecting a location for your transmitter.

1. Remove the cover from the ConneXions transmitter unit by slackening the four Phillips head screws located at the top and bottom of the unit.
2. Carefully lift off the cover and set aside.
3. Attach the transmitter to an even wall surface using suitable screws fitted through the holes provided in the chassis plate. Hold the chassis up to the chosen location and use a pencil to mark the positions of the mounting holes. **Warning:** Do not use the chassis plate as a template for drilling the holes into the wall. Hammer drills vibrating through the chassis may irreparably damage the quartz crystals on the printed circuit boards.
4. Place the ConneXions transmitter over the mounting holes and secure the unit with suitable screws. Check that the chassis plate does not bend and that the screws do not snag or pinch any of the internal cables.
5. Connect the antenna to the unit via the BNC connector located at the top of the housing. If the antenna is an external antenna, or an antenna which is separate from the transmitter unit itself, ensure that the previous criteria covered in the **Installation** section have been strictly adhered to.
6. NC365AT, NC366AT or NC368AT: Connect the ConneXions unit to any two-wire analog local telephone extension wall outlet. Access is gained by dialing the extension number. It is essential that all phones on the system are capable of sending DTMF tones internally to the paging extension.
7. Due to the number of interfaces brought out to the 9-Pin 'D' connector, you must take great care to use only the lines that are applicable to your installation. Failure to comply with this instruction will almost certainly **destroy** the unit.
8. If the unit is supplied with a sealed lead acid battery, connect the battery leads to the terminals marked **BATT+** and **BATT-** on the power supply.
9. Replace the cover and re-tighten the four retaining screws.
10. Finally, after checking all connections, insert the supplied AC power cable into the IEC type connector located at the base of the unit, and plug into a suitable wall outlet. With power applied, the red LED on the base of the unit should be lit.
11. The system is now ready to accept calls from the host system. When a call is transmitted, the green LED on the base of the unit will light momentarily.

SYSTEM OPERATION

Confirmation of power connection is provided by the red LED on the base of the ConneXions unit.

Confirmation of transmit is provided by the momentary green LED on the base of the ConneXions unit.

Sending data in the correct format (see **Pager Information** section) invokes transmitted messages to the relevant pagers.

PROBLEMS AND FAULT FINDING

1. Check and re-check the data cable connections. This, together with an incorrect signaling format, results in more faults than any other problem.
2. Check that the communications baud rate of the host equipment matches that of the relevant RS232 port (see **Figure 3** for settings).
3. Check that the pagers are at least 16 feet (5 m) from the transmitter and antenna. Under certain conditions, it is possible to flood the pager receivers and corrupt the data received.
4. Check that the pagers have their batteries installed with the correct polarity and are correctly powered up.
5. Check that the red power LED on the base of the ConneXions is lit. If not, isolate the power and check the fuse in the main plug. The main input fuse on the internal power supply and the low voltage output fuse may also be checked by a suitably qualified technician.
6. Check that the green LED is lit for the duration of the transmission. If not, go back to the data cabling and re-check the signal format.
7. Verify that the antenna is correctly installed.
8. NC365AT, NC366AT or NC368AT: Verify that phone line is correctly installed.

TROUBLESHOOTING

None of the pagers on the system will respond to a page:

1. Verify that the ConneXions interface unit has power. The red LED will be on.
2. Verify that the antenna is connected to the ConneXions unit.
3. Verify that the green LED comes on when you transmit a page. If not, check telephone cable connections.

Some of the pagers will not respond to a page:

1. Verify that the correct pager number is being used.
2. Verify that the pager is turned on.
3. Verify that the pager's battery is not dead.
4. Check whether the pager is out of range.

ConneXions does not respond:

1. Turn the system off for one minute and then re-apply power.

PORT TESTING

Using a terminal program like Procomm® or HyperTerminal from Windows 98®, you can isolate problems by sending data in the correct format to the serial port. This will cause the transmitter to activate.

Terminal Settings:

- a. 9600 baud (unless ordered with a different rate)
- b. Parity – 8, n, 1
- c. Echo On

Record your system details here for quick reference.

Transmitter frequency: **457.550 MHz**
Transmitter FCC ID No.: **JRNUSADATALINK**
Transmitter baud rate: **1200 baud**
Serial input baud rate: **9600**

Date supplied: _____

Serial Number of the ConneXions unit: _____

Number of pagers supplied with the system: _____

System base ID number: _____

PAGER INFORMATION

COMP2 Paging Protocol for COM Ports

The following information details the correct input protocol for direct input at COM1, COM2 or COM3 if you want to input your data string to create paging.

<Pager CAP Code><cr><text message><cr>

Pager CAP Code is 3 digits. (TekTone® pagers normally use CAP Codes 400–499.) The text message may be up to 80 characters long.

The transmitter software will automatically identify the pager ID with the correct CAP Code. The transmitter will transmit at 1200 baud. The serial port is set for 9600, N,8,1.

TELEPHONE OPERATION (NC365AT, NC366AT & NC368AT ONLY)

To initiate a page from a telephone, follow these steps:

1. Access the ConneXions system by dialing the extension number on which ConneXions is installed.
2. When the ConneXions unit answers, you will hear tones (four escalating low to high tones).
3. Enter the pager number you want to page, followed by a pound sign (#). Pagers can be programmed to correspond to the telephone extension number of each person.
4. You will hear a single mid tone. This confirms that the pager number was accepted. If the pager number is rejected, you will hear a low beep. You must re-enter the pager number.
5. Enter the message you wish to transmit (up to a maximum of 20 characters for numeric pagers), followed by a # sign. For an alphanumeric pager, you may also enter the number of one of the optional 50 pre-defined messages. Enter a pound sign (#) before and after the message number selection. All message number selections must be three numbers in length e.g., #001# or #012#.
6. You will hear a set of sign off tones of high, low, high, low.
7. Replace the handset.
8. If the feature of adding an additional numeric message to a selected pre-defined message was programmed into your system at the time of purchase, follow these steps:
 - a. Follow **Steps 1–5**. After depressing the last # sign, you will hear two tones. This is the prompt to enter a numeric message of up to 20 characters.
 - b. After entering the additional numeric message, depress the # sign. The user will hear a set of sign off tones of high, low, high, low.
 - c. Replace the handset.

PROGRAMMING PROCEDURE

FROM THE TELEPHONE (NC365AT, NC366AT, & NC368AT ONLY)

When the ConneXions system leaves TekTone®, it has been programmed with a default configuration which sets up the system for optimum operation.

Number of Pagers: CAP Codes 1–9999
Default Beep Type: A
Password: 72765
System Identity: Base Unit Code

The system parameters may be changed and re-programmed via any telephone, although we suggest that you utilize your system for a period of time to determine the necessity of re-programming your system. We also suggest that you use a telephone equipped with an LCD display when undertaking this task.

With pager CAP codes from 1–9999 available, each person's pager number can be the same as his telephone extension. All pager types (i.e., alphanumeric, numeric or tone) can be used with the ConneXions system. You can define a separate range of numbers for each pager type, so that, for example, pagers 1–10 are tone-only, pagers 11–200 are numeric, and pagers 201–9999 are alphanumeric. When calling a tone-only pager from a telephone, the caller can also choose the beep type.

The system is shipped with the following factory defaults.

Number of rings before ConneXions answers 1
Time before sign-on tones 1.5 Secs
Default beep for all pager types A
Inactivity timeout 10 Secs
Programming password 72765

All programmed functions are accessed via the programming menu. All programmed information is stored in one of seven registers. These registers are:

- 1 Number of rings before answering (PABX two-wire internal port only, set to value of 1 for KH interface)
- 2 Time before sign-on tones (in tenths of a second)
- 3 Set system default beep type (A,B,C,D)
- 4 Timeout (in seconds. All PABX's, some hybrids)
- 5 Set programming menu password (1 to 6 digits. Any combination 0–9)
- 7 Set pager type range (tone, numeric, alphanumeric)
- 8 Set pager base transmitter number

Write down the sequence that you wish to program before you start programming, to greatly reduce the possibility of an error. Any value entered outside valid parameters will invoke a **DUAL LOW TONE** to signify rejection. Re-enter the valid data, starting with step 3, and wait for an acceptance tone.

A. Set number of rings before ConneXions answers

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 1#
 - b. Wait for acceptance tone (Single High tone)
4. Enter the number of rings before ConneXions answers
 - a. Enter (1-9)#
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

B. Set sign-on tone delay time

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 2#
 - b. Wait for acceptance tone (Single High tone)
4. Enter sign-on tone delay
 - a. Enter (1-99)# (Delay is set in tenths of one second)
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

C. Set system default beep type

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 3#
 - b. Wait for acceptance tone (Single High tone)
4. Enter the default beep type required
 - a. Enter (1-4)# (Types: A=1, B=2, C=3, D=4)
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

D. Set time-out

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 4#
 - b. Wait for acceptance tone (Single High tone)
4. Enter time-out
 - a. Enter (1-99)# (Time-out 10 seconds if no entry is made)
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

E. Set programming menu password

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 5#
 - b. Wait for acceptance tone (Single High tone)
4. Enter new password
 - a. Enter up to 6 digits followed by a #
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

F. Set pager type range 1 to 9999

If only one type of pager is used, set the range for the other two types to zero. Gaps between pager types within a range are acceptable; overlapping groups are illegal.

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 7#
 - b. Wait for acceptance tone (Single High tone)
4. Enter Pager type
 - a. Enter (Pager type)# (1=Alphanumeric, 2=Numeric, 3=Tone only)
 - b. Wait for acceptance tone (Single High tone)
5. Enter beginning pager number for the range
 - a. Enter low value (1#)
 - b. Wait for acceptance tone (Single High tone)
6. Enter ending pager number for the range
 - a. Enter high value (9999#)
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
7. Replace handset

G. Set pager base transmitter number 1,000 to 9,999,000

Warning! Do not change this number prior to contacting TekTone®.

1. Connect to System
 - a. Dial the extension of ConneXions
 - b. Wait for sign-on tones (Four escalating Low to High tones)
2. Enter Programming Menu
 - a. Enter Password ##72765#
 - b. Wait for acceptance tone (High, Low, High)
3. Enter Register Number to be changed
 - a. Enter 8#
 - b. Wait for acceptance tone (Single High tone)
4. Enter new base number
 - a. Enter new base number (1,000-9,999,000)#
 - b. Wait for acceptance tone (Mid, Low, Mid, High)
5. Replace handset

PRE-PROGRAMMED MESSAGES

Each installation is unique. A copy of the pre-defined messages you ordered will be supplied with the unit. If no messages are ordered, the system will ship with the following 10 pre-programmed messages.

- 1 Pick up Extension (add numeric message)
- 2 Go to Room (add numeric message)
- 3 Need Assistance in Room (add numeric message)
- 4 Please Meet Your Customer at Location (add numeric message)
- 5 Please Call Extension (add numeric message)
- 6 Contact the Receptionist
- 7 Report to the Office
- 8 See your Manager
- 9 Call Home
- 10 !!CLEAR THE BUILDING!!

Figure 1—NC365A/AT, NC366A/AT, NC368A/AT

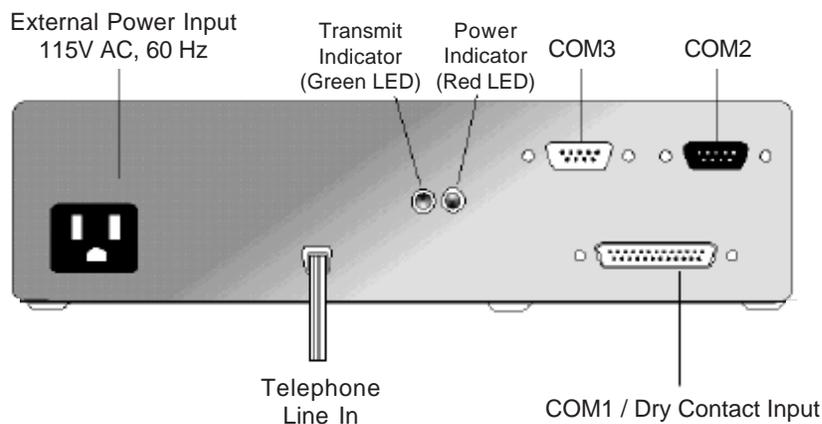


Figure 2—NC365

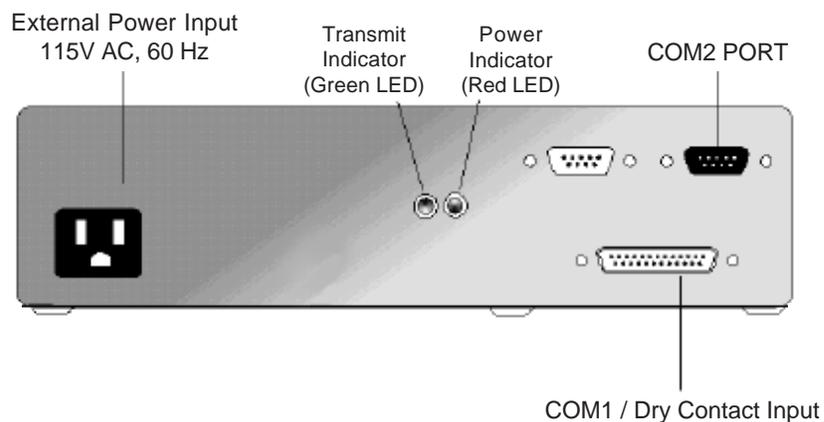


Figure 3—Pin descriptions for COM1, COM2 and COM3

COM1 Serial Port (25 Pin D type plug)

PIN	SIGNAL	DIRECTION
2	Transmit Data (TX)	OUT
3	Receive Data (RX)	IN
4	Request to Send (RTS)	OUT
5	Clear to Send (CTS)	IN
7	Ground (GND)	
20	Data Terminal Ready (DTR)	OUT

COM2 and COM3 Serial Ports (9 Pin D type plug)

PIN	SIGNAL	DIRECTION
1	N/C	
2	Receive Data (RX)	IN
3	Transmit Data (TX)	OUT
4	Data Terminal Ready (DTR)	OUT
5	Ground (GND)	
6	N/C	
7	Request to Send (RTS)	OUT
8	Clear to Send (CTS)	IN
9	+5V	

Since information passes only from the host equipment to the pager transmitter, you will only need to read the DTR line which, if high, shows that power is applied to the transmitter. The RTS line will be high when the transmitter is ready to receive data. The transmitter RTS line should be connected to the host CTS line to facilitate correct handshaking. Prior to connecting the data cable(s), thoroughly check the system pin connections as shown above.

Note: The default communications baud rate settings are as follows: COM1, COM2 and COM3 = 9600 baud. These are factory set in software and are not hardware adjustable.

Figure 4—COM1 Optional (10) Dry Contacts

PIN	DESCRIPTION
7	Common (Ground)
21	Dry Contact No. 1
9	Dry Contact No. 2
13	Dry Contact No. 3
25	Dry Contact No. 4
12	Dry Contact No. 5
24	Dry Contact No. 6
11	Dry Contact No. 7
23	Dry Contact No. 8
10	Dry Contact No. 9
22	Dry Contact No. 10

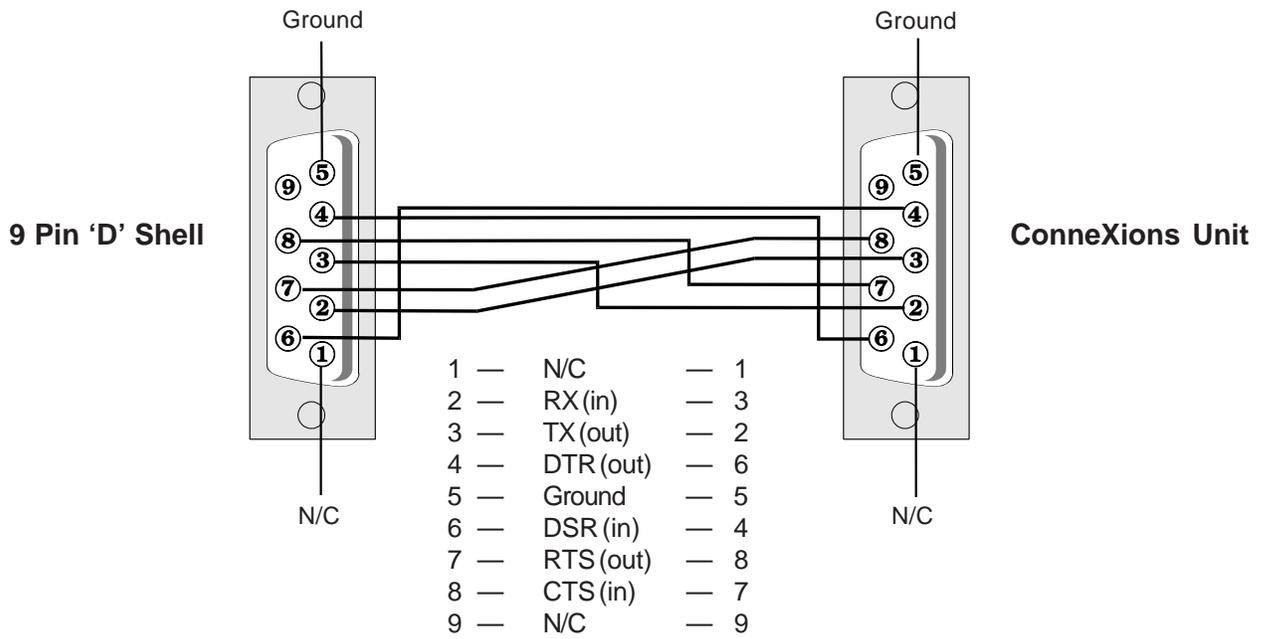
Shorting any of the above pins to the Common (Ground) pin 7 will trigger the respective alarm.

Note: The dry contact option must be specified at time of ordering, together with the pre-programmed messages required for each contact. If not, the unit will be shipped with contact messages [Alarm 1 through Alarm 10].

Figure 5—ConneXions Cable for COM1 for Paging & Dry Contacts

ConneXions 25-Pin 'D'	9-Pin Paging Connector	25-Pin Dry Contact
1 N/C	1 N/C	1
2	3	2
3	2	3
4	7	4
5	8	5
6	6	6
7	5	7
8 N/C	9 N/C	8 N/C
9		9
10		10
11		11
12		12
13		13
14		14
15		15
16		16 N/C
17		17
18		18
19		19
20	4	20 N/C
21		21
22		22
23		23
24		24
25		25

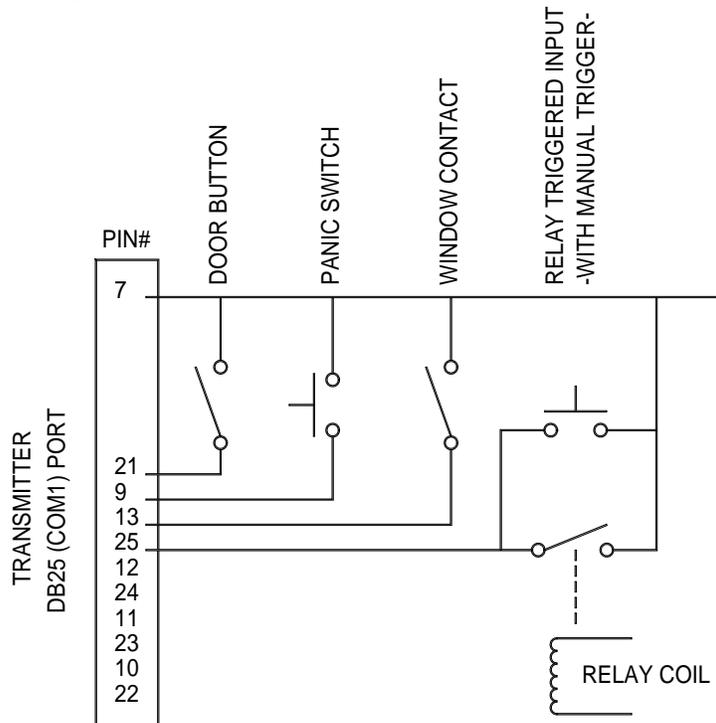
Figure 6—PC to ConneXions Serial Cable Diagram



Note:

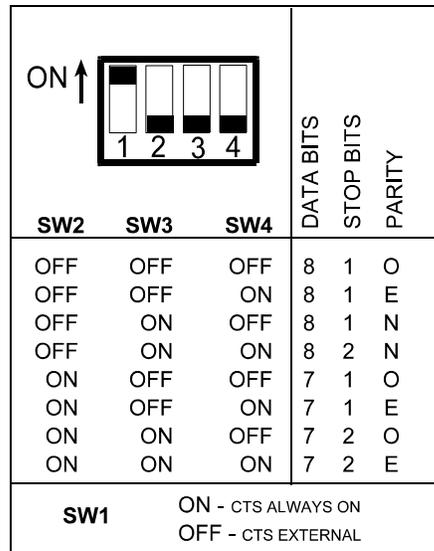
If shielded cable is used, tie shield to PIN 5 on only one plug.

Figure 7—Dry Contact Wiring Examples

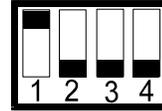


CONNECTION EXAMPLES
ALL INPUTS ARE N.O. TYPE

Figure 8—NC205 System PM263



Printer
(Okidata 182 or equivalent)



Pager
(NC365 or equivalent)

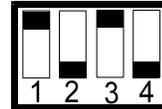
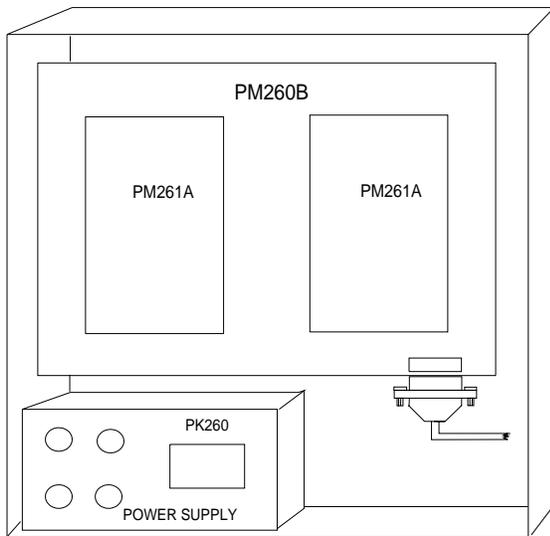
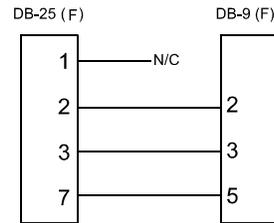


Figure 9—NC205 System



INTERFACE CABLE SCHEMATIC DIAGRAM FOR PAGER SYSTEM



INTERFACE CABLE SCHEMATIC DIAGRAM FOR EVENT PRINTER

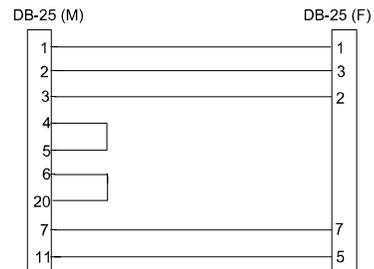
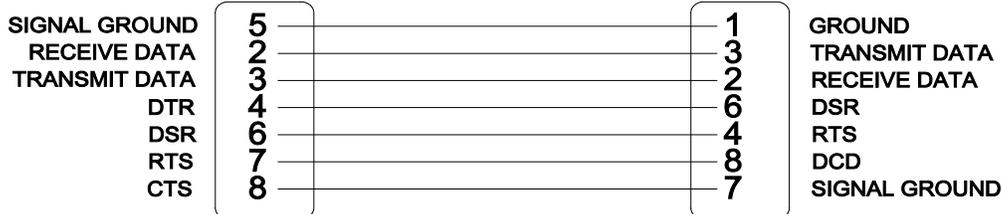


Figure 10—NC300 and NC300 II System

NC362 Video Card Serial Port (NC300) or
NC304, NC304LCD Serial Port (NC300 II) or
NC351, NC351/2 Pager Port (NC300 II)
DB9 Female Connector

ConneXions System
DB9 Female Connector



50' MAXIMUM

