WaveWare Interface Commands

The commands available for serial port controlled paging using the WaveWare Paging Protocol include:

- System Identification
- Paging Message
- Setup
- Status

PAGING MESSAGE COMMAND

The Paging Message command is formatted as follows:

Example 1:

<SOH>TBCC...C<STX>XXXX...XXX<ETX><EOT>

Example 2:

<SOH>T,B,CC...C,<STX>XXXX...XXX<ETX><EOT><CR><LF>

Note: The commas, the <CR> character, and the <LF> character are optional in the Paging Message command. They are used for appearance purposes to separate subparts of the command string and for formatting the echoed output while troubleshooting the system.

<SOH> (Hex code 01) is used to mark the start of a message. This character resets the paging system and can be used to abort an incomplete paging command at any point prior to transmission.

T Alphanumeric character representing the type of paging message to be transmitted

A = Alphanumeric

N = Numeric

1 = One Beep (tone/vibe only pagers)

2 = Two Beeps (all pager types)

3 = Three Beeps (all pager types)

4 = Four Beeps (tone/vibe only pagers)

B Numeric character representing the data rate, in bits per second, at which the paging message is to be transmitted

5 = 512 bps

1 = 1200 bps

2 = 2400 bps

Note: This numeric character may have one or no leading commas separating it from the paging message type.

C...C One to seven decimal numeric digits representing the Cap Code of the paging receiver to which the message will be transmitted. Cap Codes are seven digit strings. Cap Codes that begin with leading zeroes do not require the leading zeroes to be included in this numeric string, if you use comma delimiters. If comma delimiters are not used, you must include leading zeroes.

Note: This numeric string may have one or no leading commas separating it from the data rate.

<STX> (Hex code 02) is used to mark the beginning of a string of message characters to be transmitted. For paging message types of 1 to 4 Beeps (defined by the 'T' character above), this character and all following characters are ignored by the paging transmitter, until another <SOH> is encountered. This character may have one or no leading commas separating it from the Cap Code.

X...X A string of 0 to 256 alphanumeric message characters to be transmitted. For paging message types of 1 to 4 Beeps, this character and all following characters are ignored by the paging system, until another <SOH> is encountered.

<ETX> (Hex code 03) is used to mark the end of a string of message characters to be transmitted. For paging message types of 1 to 4 Beeps, this character and all following characters are ignored by the paging system, until another <SOH> is encountered.

<EOT> (Hex code 04) is used to mark the end of a Transmit Paging Message command string. All following characters are ignored by the paging system until a <SOH> character is encountered.

<CR><LF> (CR is Hex code 0D, LF is Hex code 0A) These characters are ignored by the paging system unless contained within a message string and are used only for formatting output on a PC. The <CR> and <LF> characters are optional.

Example 1:

<SOH>A,5,46180,<STX>This is a test<ETX><EOT><CR><LF>

Will send the message "**This is a test**" at 512 bps to an alphanumeric pager with Cap Code 0046180.

Note: The POCSAG alphanumeric character set is the entire ASCII 7 bit character set.

Example 2:

<SOH>N,5,0765155,<STX>412-3433<ETX><EOT><CR><LF>

Will send the message "**412-3433**" at 512 bps to a numeric pager with Cap Code 0765155.

Note: The POCSAG numeric character set allows Hyphen (-), space, left bracket ([), and right bracket (]) characters in addition to the normal numeric character set.

Example 3:

<SOH>N1765155<STX>412-3433<ETX><EOT>

Will send the message "**412-3433**" at 1200 bps to a numeric pager with Cap Code 0765155. Note the lack of commas and the implied leading zeroes on the Cap Code.

Example 4:

<SOH>3,1,145678<EOT>

Will send a three beep tone/vibe only message at 1200 bps to a tone/vibe only, a numeric, or an alphanumeric pager with Cap Code 0145678 and multiple tone/vibe cadence capability. Certain paging receiver models may not be designed to respond to multiple tone/vibe cadence messages.

Example 5:

<SOH>2,1,145678<STX>412-3433<ETX><EOT>

Will send a two beep tone/vibe only message at 1200 bps to a paging receiver with Cap Code 0145678. Note that the portion of the string after the Cap Code is ignored by the paging system because the paging message type was a paging message type of one to four beeps.

Example 6:

<SOH>450006123<EOT><CR><LF>

Will send a four beep tone only message at 512 bps to a paging receiver with Cap Code 0006123.

RESPONSE TO ALL COMMANDS

The paging system will respond immediately to all commands, including Paging Message commands, Setup Commands, and Status Commands, by echoing the Paging Message command back to the PC, and appending the echoed command with a status message in one of the following formats:

<SOH><ACK>V..V,QQ,D,C,II<EOT>

The ACK response is sent by the paging system to the PC immediately following a command if the command was understood by the paging system.

<SOH><NAK>EE<EOT>

The NAK response is sent by the paging system to the PC immediately following a command if the command was not understood by the paging system or if certain errors occur.

<SOH> (Hex code 01) is used to mark the start of a message.

<ACK> (Hex code 06) is used to indicate acknowledgement of valid reception of a command from the PC.

V..V Alphanumeric string that indicates the version number of the firmware in the paging system. The version number is followed by a comma character.

QQ A one to two numeric character string that indicates the quantity of paging messages that have been received by the paging system and not yet transmitted (Input Queue).

The QQ value is followed by a comma character. This parameter should be monitored if you intend to use software handshaking between your paging control software and the paging transmitter. The paging transmitter Input Queue overflows if the QQ value tries to exceed 14. As an example, with software handshaking, your software should stop sending data at a QQ value of 12 and resume sending data when the QQ value reaches 10 or less. You can query the size of the Input Queue by submitting a Status Command, described on the following pages.

D Numeric character that indicates whether the carrier detect circuit in the paging system is currently detecting a carrier signal or not. Valid values are:

0 = Carrier Signal Not Detected
1 = Carrier Signal Detected

Note: The carrier detect signal status is passed to the PC whether or not the paging system has been programmed to avoid transmitting when a carrier signal has been detected (see Programming Command below).

C A single numeric value used to indicate the On/Off state of the Carrier Detect mode. The numeric character is followed by a comma.

Valid values (C) are:
0 = Off
1 = On

II A two hexadecimal digit value that is reserved for future use.

<EOT> (Hex code 04) is used to mark the end of a message

<NAK> (Hex code 15) is used to indicate non-acknowledgment of a command from the PC.

<EE> Two numeric characters that indicate the particular error that caused no acknowledgment of a command from the PC. The possible error values are:

01 = Invalid Message Type. Indicates a message type other than A, N, 1-4 was transmitted.

02 = Invalid Data Rate. Indicates a data rate other than 5, 1, or 2 was transmitted.

03 = Invalid Cap Code. Indicates an invalid Cap Code was transmitted. Invalid Cap Codes are: 0-7, 2007664-2007671, 2045056-2045063, 2097144+.

04 = Input Buffer Overflow. Indicates the serial data input buffer in the paging system has overflowed. This condition would likely be caused by the host system not recognizing the CTS signal.

05 = Paging Buffer Overflow. Indicates the encoded paging message output buffer in the paging system has overflowed. This condition would likely be caused by excessive carrier signal detection while the Carrier Detect mode was enabled.

06 = Invalid Status/Setup Command. Indicates that the command was recognized as a Status or Setup command but the entire command string was not fully interpreted by the paging system.

07 = EEPROM Write Error. Indicates an internal system error in the paging system with regard to the proper storage of configuration information. This condition would likely indicate that paging system repair is required.

08 = Invalid Command Format. Indicates that the command was not fully recognized as a valid paging system command.

Example 1:

<SOH>A,5,46180,<STX>This is a test<ETX><EOT><SOH><ACK>V3.00,00,0,1,1A<EOT>
echoes the paging message command and acknowledges proper receipt of a command by appending the ACK, indicating paging system firmware version is 3.00, no paging messages in queue, no carrier signal is being detected, and Carrier Detect mode is set to ON. The last field does not currently provide useful information.

Example 2:

<SOH>4,5,0000006<EOT><SOH><NAK>03<EOT><CR><LF>
echoes the paging message command and indicates an error in receiving a command due to an invalid paging receiver Cap Code in a Paging Message command. Includes a <CR> and <LF> at the end of the response string if they were included in the paging message command.

SETUP COMMAND

You may program the **WaveWare Paging System** to monitor for interference using the Carrier Detect mode. If the Carrier Detect mode is turned on, the paging system will hold paging messages in queue until an offending carrier signal is no longer detected at the transmission frequency of the paging system. The settings programmed by the Setup command will be remembered by the paging system even if power is removed from the paging system. The Setup command is formatted as follows:

<SOH>S,X,V<EOT>

Where the S indicates Setup Mode, X is the command type, and V is the value. The comma delimiters are optional.

X A single numeric value used to indicate the command type. The numeric character is followed by a comma.

Valid values (X) are:

1 = Carrier Detect Mode

V A single numeric value used to indicate the value of the command setting to be saved. The numeric character is followed by an EOT character.

Valid values (V) are:

0 = Off

1 = On

Example 1:

<SOH>S,1,0<EOT> will set the Carrier Detect function to the Off status.

Example 2:

<SOH>S11<EOT> will set the Carrier Detect function to the On status.

STATUS COMMAND

You may request the paging transmitter to respond with its current programmed settings using the Status command. The Status command is formatted as follows:

<SOH>S?<EOT>

Where the S? requests the paging system to respond with the status of its current programmed settings. The Status Command can be used in supervisory controlled applications to ensure the transmitter is still functioning, without causing unwanted paging transmissions.