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LED-DEC W07
REMOTE DISPLAY WIRELESS DECODER

INSTALLATION MANUAL

LED-DEC W07 Remote Display Wireless Decoder Installation Manual v1.1

1. Contents

2. Equipment List

- **LED-DEC W07 "Remote Display Wireless Decoder"**
- **9-12V DC 0.66Amp Power Supply (Note: use Switch Mode or Regulated P/S only)**
- **Green Terminal Block (15 Pin)**
- **Antenna**
- **Installation Manual**
- **SmartLite LED Displays (Sold Separately)**

3. Overview

3.1   Introduction

The **LED-DEC W07 Remote Display Wireless Decoder** is used to display **SmartLink Alarm Calls** on a **SmartLite** or **BetaBrite** Adaptive LED display sent via **POCSAG** pager messaging. Alarms can be paged to a specific **Cap Code** recognised by the LED-DEC W07 Remote Display Wireless Decoder which will then display the call with appropriate colours and priority for **Nurse Call** applications.

Alarm Calls are generated using either SmartLink's **SmartWatch XP MKII** or **Fusion EMM** Monitoring Software or the standalone **SmartPage** System connected to any of the following SmartLink Devices:

- SmartWire MKII Nurse Call
- SmartLine Wireless
- Medi-Call Diallers (via SCU2 Receiver)

3.2   Location Selection & Cabling *** Important ***

- **Choosing a suitable location for your LED-DEC W07 will ensure optimal reception of the alarm call messages. The RF receiver on the LED-DEC W07 has a sensitivity of -120dBm. To ensure signal integrity, it is recommended that the signal strength be measured at the proposed site before installation.**

- **When running RS232 data cables from the LED-DEC W07 to the LED Displays make sure that the total cable run does not exceed 20m. For example, if you are running 4 LED Displays from a single LED-DEC W07, then each LED Display should have a data cable no more than 5m in length. If data cables need to be run further, we recommend using an RS232 to RS485 converter which will give distances of up to 1.2km.**

3.3   Display Types (Addressable or Non-Addressable) *** Important ***

Addressable Displays (SSADR-50-16 and DSADR-50-16):

When using Addressable SmartLite Displays, the displays should be configured in the **Addresses range from 01 to 16**. **Displays must NOT be left at the default Address of 00.**
Multiple displays can share the same address, providing identical operation of all the like-addressed Displays.
LED-DEC W07 will use separate CAP Code and priority filter settings for each of the 16 unique addresses.

Non-Addressable Displays (SS-50-16 and DS-50-16):

Multiple Non-Addressable SmartLite Displays can be used, however the LED-DEC W07 does not have control over the individual displays. Only the settings for **Address 01 apply**.
Non-Addressable displays cannot generate tones. The external Speaker Output can be used in this mode, or the relays can be used to activate external audible alerts.

4. Connections

The LED-DEC W07 "Remote Display Wireless Decoder" operates with either _Addressable_ or _Non-Addressable_ SmartLite Displays.
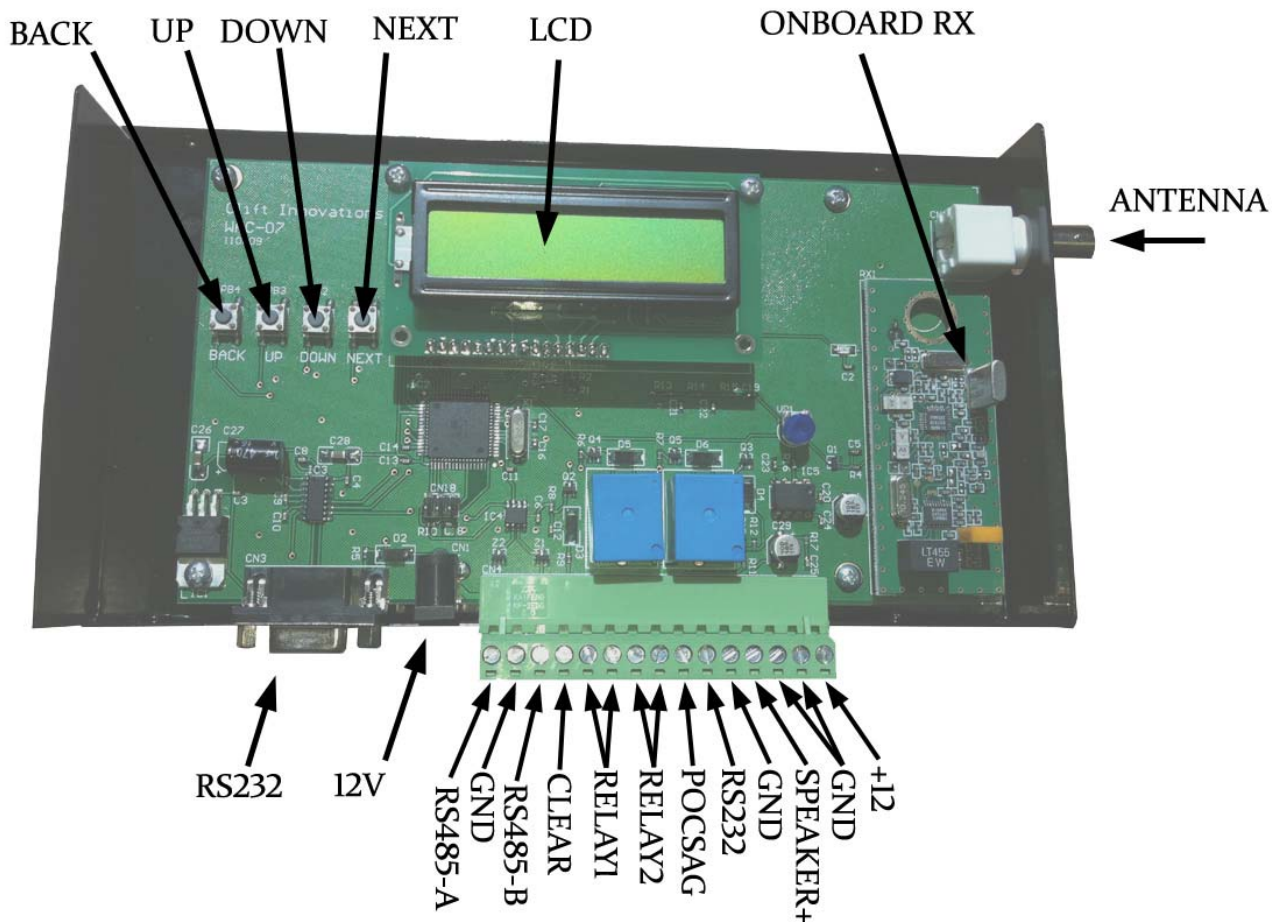
4.1 12V DC Input Jack

The 12V Input connector is a DC Jack with a 2.1mm pin. The power requirements are 9-12V @ 200mA. The centre pin is positive. A 9V / 660mA DC plug-pack is supplied with each unit.
Each display should be powered by it's own nearby power supply.

4.2 Antenna Connector

If the internal paging receiver is fitted, this is a 50-ohm BNC connector, for receiving 148.3375 MHz FM transmissions. It must be cabled to an appropriate antenna with correct orientation.
A quarter wave Antenna is provided with this model.

- **Do NOT wire this directly to a paging transmitter.**

- **Do NOT install the receiving antenna within 2 meters of the transmitter's antenna.**

4.3   RS232 Serial Maintenance/Craft Port (DB 9 Pin Female)

The RS-232 interface may be used to configure the LED-DEC W07 using a terminal program such as HyperTerminal or Hercules (preferred). It can also be used to display & monitor diagnostic information, or to upload new LED-DEC W07 operating firmware.
The port is configured as standard 9 pin female DCE, for connection with a PC's COM ports.

The Port Settings are: **Baud:**   38400
                               Data bits: 8
                               Parity: None
                               Stop bits: 1

4.4   +12V DC and GND Connection

The +12VDC and GND are physically connected in parallel with the 12V DC Input Jack, and are provided as a power supply connection if an alternate DC source is used.
If these terminals are used to power accessories, the maximum current between these connections and the DC Jack should not exceed 4A.
The standard DC Plug Pack provided with the unit will not provide more than its rated current.

4.5   Speaker Output Connection

This can be wired to an external 8 Ohm speaker. It is most useful in situations where the SmartLite Display is not used to generate alert tones. The output will sound all alert tones which are sent to display address 01. The volume can be controlled by the VR1 trimmer on the main PCB. The speaker should be connected between this terminal and ground.

4.6   RS232 and GND Connection

The RS232 output on the terminal block can be used to communicate with SmartLite Displays over short distances (<25meters).

<p align="center"><i><u>WARNING:</u></i> Improper Connections will damage the Display.</p>
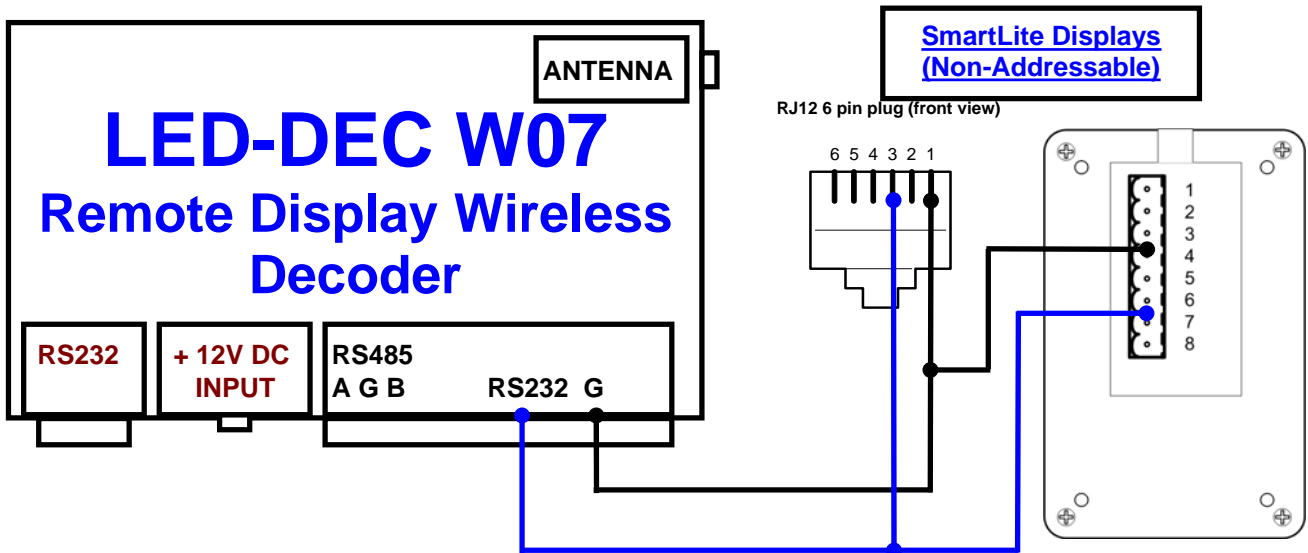
4.7   POCSAG Connection

This **Hardwired POCSAG Data Input** can only be used when the LED-DEC W07 is supplied *without* the onboard radio paging receiver. This input can accept POCSAG data at 0:5V levels. If the onboard radio receiver is fitted, this input should be left un-assigned.

4.8   Relay 1 and 2 Output Connections

These utility relays are available to interface accessories to the LED-DEC W07. They may be configured to actuate on fault and alarm events - with a pulse or other cadence. The relays are rated at 1A for low voltage operation (max. 50VDC).

Possible Relay 1 and 2 operating modes are:

- **CALL**

    The relay will activate for the duration of the highest priority in the message stack.
    Message priority: <u>CALL</u> or higher.

    The relay will not activate for diagnostic level messages (lower priority than 'call').

    If the relay is configured to *pulse*, it will trigger when the highest priority in the message stack *transitions* to 'Call' or higher.

    The relay will *not generate a pulse for every message received*, unless each message is cancelled before the next occurs.

- **EMERGENCY**

    Identical function to mode 'Call'.

    The alert trigger level is <u>EMERGENCY</u>.

- **WATCHDOG**

    The relay will activate, for the duration of an error condition caused by no traffic being received for longer than the watchdog period. If the relay is configured to pulse, it will pulse once when this condition occurs. The pulse duration is 1-sec.

    By default, the watchdog is <u>disabled</u>. The watchdog may be used to detect system failure... timing out if no messages are received within a configurable period of time.

    If the watchdog times out, "System down" will be shown on all the displays. It will be cleared when a new message is received.

    Messages to the watchdog CAP code (default -0123456), will clear only the watchdog, and not show on any of the displays. Systems required to specifically produce a transmission to clear a watchdog should use this CAP code over any other method.

- **CADENCE**

    There are four relay cadence' available:

    - Silence   - nothing
    - 1 beep   - single (to generate this, select cadence option 'DingDong')
    - 2 beeps   - single
    - Beeping   - repeating

    This feature is intended to generate sounds when non-addressable displays are used.

    The relay will generate closures - regardless of which type of display is used. However, when addressable displays are used, the relays will only trigger on events sent to display Address 01.

4.9   Clear Input Connection

The **Hardwired Clear Input Connection** is used where display messages must be purged with a manual or external contact closure. The clear input is a momentary closure to 0V. When the input is asserted, all messages which have been displayed at least once will be deleted. Messages which have not yet displayed due to higher priority events, will be retained.

4.10   RS485 (B, GND, A) Connections

This is the preferred interface to the SmartLite Displays. Each run of cable between devices use a single twisted pair for A & B only, and must be terminated in a 120-ohm resistor at the end of the run length. Tee-off branches, or star-topologies can only be attempted with additional hardware data repeaters such as the **RS485 Splitter**.

Multi-Drop RS-485 cabling and 120-Ohm Resistor termination
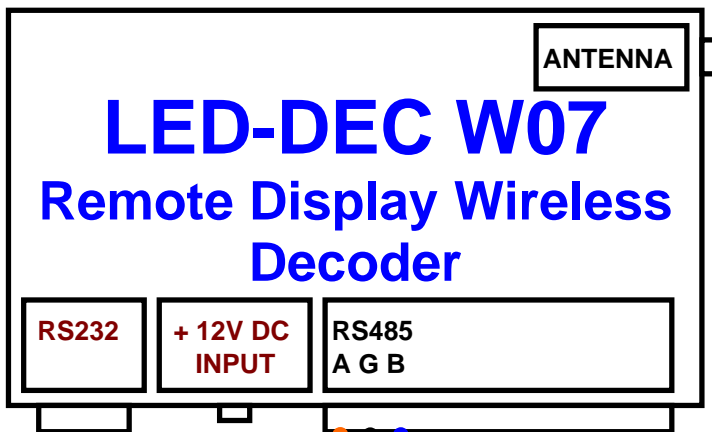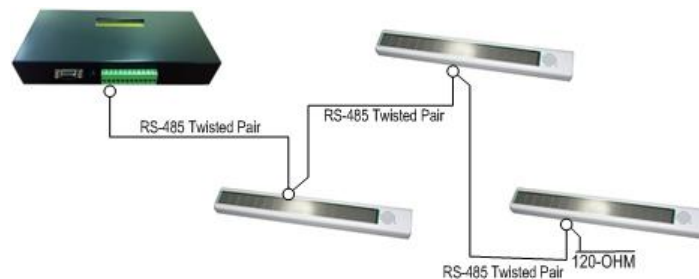
Important:

- **RS485 is recommended to be a Single Daisy Chain cable run/connection to all Displays. NB: if star is used then RS485 splitters will be required.**

LED-DEC W07
Remote Display Wireless Decoder

ANTENNA

RS232 | + 12V DC INPUT | RS485 A G B

SmartLite Displays (Addressable)

3. +12V DC   3. +12V DC
4. Ground   4. Ground

CAT-5 This Pair must be Twisted

Terminate End of Line R at last Display

8. RS232 (NOT USED)

120 Ohm 1/2 Watt Resistor
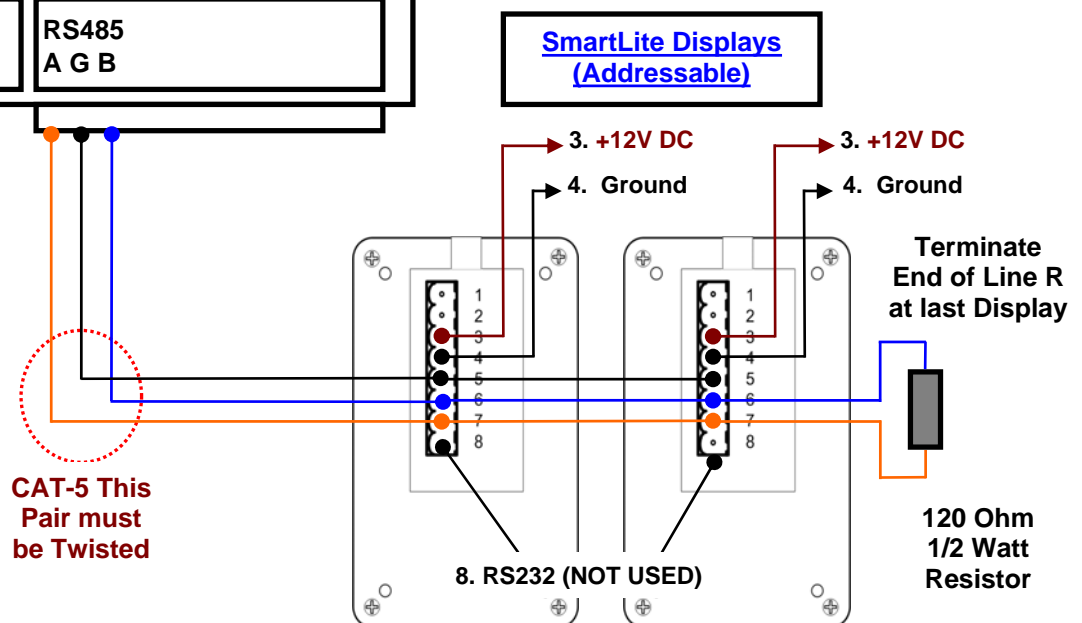
5.   BACK, UP, DOWN, NEXT Buttons SETUP

The *BACK, UP, DOWN, NEXT* Buttons are used when configuring the device using the *LCD Display*.
Although the device can be fully configured using this method, the RS232 Serial Port is preferred.

Warning: Do Not Change the Default Settings. Contact SmartLink for more information.
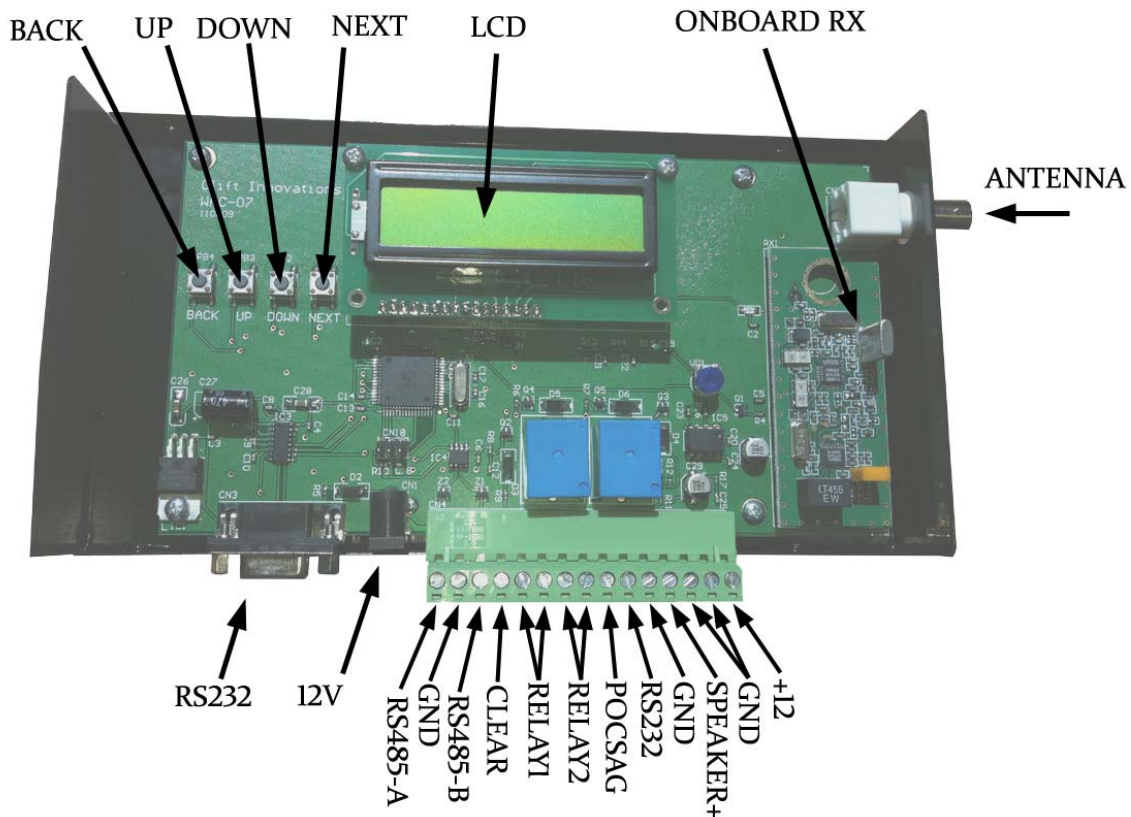
Press any button to enter the LCD menu, the options are:

> **Select Sounds**
>
> **Colours & Modes**
>
> **Relay Functions**
>
> **Display Timing**
>
> **Cap Codes**
>
> **Priority Filters**
>
> **Display Test**
>
> **Radio Polarity**
>
> **Protocol**
>
> **Default Settings**
>
> **Display Type**

Press **BACK** to exit the menu, or **UP** and **DOWN** to rotate through menu items, and **NEXT** to select.
The menu will exit if no buttons are pressed for 30 seconds,.

5.1   Select Sounds

BACK to exit.
UP and **DOWN** rotate through priorities, and **Repeat All/Cycle** option.
NEXT rotates through available cadences, or toggles **Repeat All/Cycle** option.

5.2   Colours & Modes

BACK to exit.
UP and **DOWN** rotate through priorities and colour/mode.
NEXT rotates through available colours, or toggles display mode SCROLL/STATIC.

5.3   Relay Functions

BACK to exit.
UP and **DOWN** rotate through relay parameters.
NEXT rotate through modes, toggles polarity, or toggles PULSE/STEADY.

5.4   Display Timing

BACK to exit.
NEXT to select timing parameter.
UP and **DOWN** to modify a timing parameter.

5.5   Cap Codes

BACK to exit.
UP and **DOWN** select the CAP code to be modified.
NEXT to begin editing the CAP code.
While editing the CAP code, a flashing cursor will be displayed.
NEXT select which digit to modify.
UP and **DOWN** modify the selected digit.
BACK finished, save modified CAP code.

5.6   Priority Filters

BACK to exit.
UP and **DOWN** select which display address.
NEXT begin editing the filter settings for the selected display.
When selecting a display, (**All enabled**) will be shown if none of the priorities have been disabled on this display. When editing filter settings, button controls are:
UP and **DOWN** select the priority level to edit.
NEXT toggle selected priority **YES/NO** (yes means display WILL show this priority).
BACK finished.

5.7   Display Test

Sends a test message to every Display Address. The test message shows the address (1-16), and a long string of amber ||||||||||||||.
The ||| message pattern has two purposes, the number is used to check that displays are set to the correct address, and the amber |||||||| characters are used to apply a load to the display power supply – as well as lighting all the red & green character dots.
If there any issues with a display's power cabling or display this test will expose the problem. The test does not time out, press any button to exit the test.

5.8   Radio Polarity

BACK to exit.
UP or **DOWN** or **NEXT** to rotate polarity options of **NORMAL, INVERTED, AUTO**.
See the section above titled "Pocsag input" for a description of polarity options.

5.9   Protocol

BACK to exit.
UP and **DOWN** to select which protocol to enable/disable.
NEXT to toggle protocol **YES/NO** (yes means the device WILL respond to this protocol).

5.10   Default Settings

BACK to exit
UP and **DOWN** to select which default set to use.
NEXT (twice) to default settings.

5.11   Display Type (Addressable or Non-Addressable)

BACK to exit.
UP, DOWN, NEXT to toggle display type from **ADDRESSABLE / NON-ADDRESSABLE**.

6.   CONSOLE MENU SETUP

Warning: **Do Not Change the Default Settings. Contact SmartLink for more information.**

The Console Menu is the easiest way to Setup and Configure the LED-DEC W07.
Connect a serial craft terminal configured for 38400,n,8,1 and press the space bar.

The main menu will appear:

```
****** WAC-07 V1.0 Main Menu ******
1. Global Cap Code      123464
2. Watchdog Cap Code    123456
3. Display Settings
4. Priority colours, modes, and sounds.
5. Timing Settings
6. Relay Settings
7. Protocol Settings
8. Default Settings
9. Upload Firmware
0. Exit
>
```

If an option is not selected for 30sec, the menu will exit automatically.

6.1   Global Cap Code

Select this option to change the global CAP code. Messages sent to this CAP code will be sent to all 16 display addresses. The default for this setting is **123464**.

6.2   Watchdog Cap Code

Select this option to change the watchdog CAP code. Messages sent to this CAP code will only reset the watchdog timer, and will not show on the displays. The default for this setting is **123456**.

6.3   Display Settings

Select this option to configure the type of display, display CAP codes, and priority filters. The following submenu will appear:

```
****** Display Menu ******
1. Display type ADDRESSABLE
2. Cap Codes
3. Priority Filters
```

Option 1 toggles the display type between addressable and non-addressable.
Option 2 shows the following sub-menu:

```
DISPLAY#   CAPCODE-1 CAPCODE-2 CAPCODE-3 CAPCODE-4
 1         0         0         0         0
 2         0         0         0         0
 3         0         0         0         0
           ::        ::        ::        ::
14         0         0         0         0
15         0         0         0         0
16         0         0         0         0
Select display (1-16) >
```

To modify a CAP code for a particular display, enter the display address number (1-16), then select a CAP code 1-4, and enter a new value between 0 and 2097151. 0 means disabled.
Option 3 shows the following sub menu:

```
DISPLAY#           1.DIAGNOSTIC          2.CALL    3.WET AREA
        4.ASSIST 5.EMERGENCY
1          YES       YES       YES       YES       YES
2          YES       YES       YES       YES       YES
3          YES       YES       YES       YES       YES
 :         ::        ::        ::        ::        ::
14         YES       YES       YES       YES       YES
15         YES       YES       YES       YES       YES
16         YES       YES       YES       YES       YES

Select display (1-16) >
```

To enable or disable a priority for a certain display address, select the display address 1-16, then a priority 1-5, the filters will toggle between **YES/NO.**

6.4   Priority Colours, Modes and Sounds

Select this option to configure the colours, display modes, and sounds for different priorities. The following sub menu will appear:

```
****** Priority Options ******
1. Colours
2. Modes (scroll/static)
3. Sounds
>
```

Select option 1 to modify colours. The following sub menu will appear:

```
****** Priority Colours ******
1. Fallback   GREEN
2. Diagnostic AMBER
3. Call       AMBER
4. Wet Area   AMBER
5. Assist     FLASH AMBER
6. Emergency  RED
Select >
```

Choose a Priority, and then select a colour (1-7).

Select option 2 to modify display modes, the following sub menu will appear:

```
****** Priority Display Modes ******
1. Fallback   SCROLL
2. Diagnostic STATIC
3. Call       STATIC
4. Wet Area   STATIC
5. Assist     STATIC
6. Emergency  STATIC
Select >
```

Choose a priority to toggle between STATIC and SCROLL.

Select option 3 to modify sounds. The following sub menu will appear:

```
****** Priority Sounds ******
1. Fallback   SILENCE
2. Diagnostic DINGDONG
3. Call       2BEEPS
4. Wet Area   2BEEPS
5. Assist     8SLOWBEEPS
6. Emergency  BEEPING_REP
7. Repeat sound every display cycle? NO
         Select >
```

Choose a priority and then select from one of the available sounds.

See the section on 'Display control' for a description of option 7.

6.5   Timing Settings

Select this option to modify timing settings in the LED-DEC 07.
The following sub menu will appear:

```
****** Timing Settings ******
1. Display cycle 5sec
2. Auto cancel   60sec
3. Maximum life  240min
4. Watchdog      0min (disabled)
Select >
```

Choose the setting to modify, and enter a new value.
A short description of the setting will appear.

6.6   Relay Settings

Select this option to configure the relays, the following sub menu will appear:

```
****** Relay Settings ******

1. Relay 1 mode      Watchdog
2. Relay 1 polarity Normally Open
3. Relay 1 action    Steady

4. Relay 2 mode      Emergency
5. Relay 2 polarity Normally Open
6. Relay 2 action    Steady

Relay 1 will close for the duration of a watchdog timeout.
Relay 2 will close for the duration of emergency alert.

Select >
```

The available settings are shown, along with a text description of the relays behaviour.
Note that when the cadence mode is selected, the Steady/Pulse option is not available.

6.7   Protocol Settings

Select this option if you wish to enable or disable any of the available input formats.
The following sub menu will appear:

```
****** Input formats ******
1. Adteck                 YES
2. Smart Caller Plain text   YES
3. Smart Caller alt1 %{type} YES
4. Smart Caller alt2 %9    YES
5. Smart Caller standard   YES
6. Smart Link             YES
7. Smart Link type A      YES
8. Smart Link type B      YES
9. Smart Link type C      YES
Select >
```

Selecting a format will toggle YES/NO

6.8   Default Settings

This option will default all settings in the LED-DEC W07. There are default options available to suit SmartLink Installations. Beware that this will **ERASE** all Display Cap Codes to 0 (disabled).

6.9   Upload Firmware

The LED-DEC W07 is able to load new firmware via the console interface.

Do not attempt to use HyperTerminal for this action.

It is recommended to use a terminal program called **Hercules.**

Using Hercules, Press Z (upper case), then right click the background and choose 'Send File', select the .hex file supplied. The loader will report progress as the part programs, you will occasionally see 'Retry' messages this is normal.

If for some reason the upload fails, you will be prompted again to press Z and send the hex file. If the load fails, and the device ends up in a state where you are unable to enter the console menu, the following procedure can be used to activate the boot loader.

1. Configure the terminal for 9600 baud (not 38400).

2. Remove power from the unit.

3. Hold space on the terminal, while powering the unit.

You will see a prompt and be able to upload the .hex file.

The upload will take longer due to the lower data rate of 9600.

Don't forget to change the bit-rate back to 38400 after the load is successful.

## 6.10   Exit

Exit the menu and continue normal operation.

7. Configuring the Monitoring Software

7.1 Creating a Contact for the LED-DEC W07 Remote Display

The LED-DEC W07 Remote Display can be added as a Recipient to SmartWatch XP just like any other POCSAG receiver such as a pager.

The first step is to add a POCSAG **Port** and Configure the POCSAG **Gateway** with the appropriate settings for your chosen paging transmitter. (For more information on setting up, please refer to the SmartWatch XP Installation Manual.)
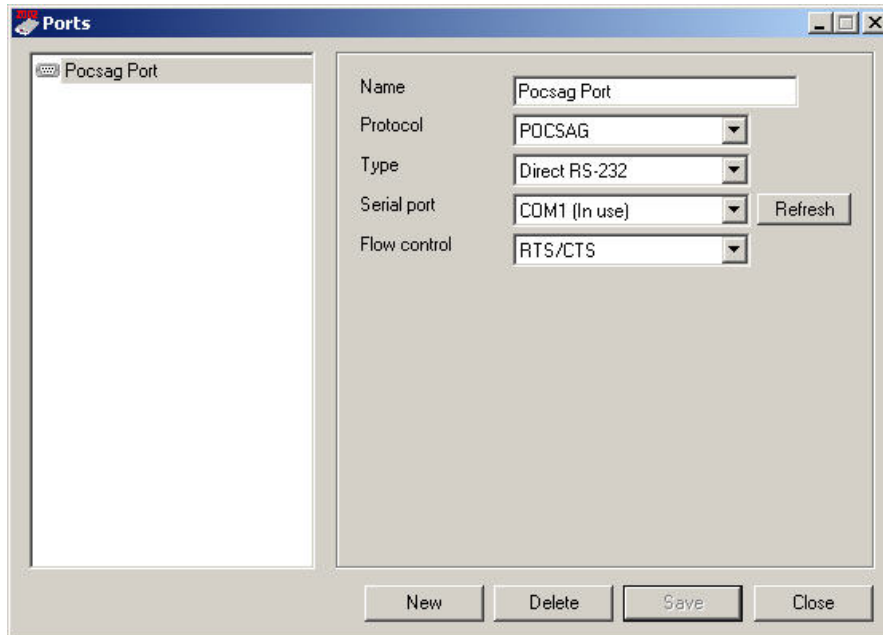

The next step is to create contacts for your LED-DEC W07 Remote Displays in SmartWatch XP. In the following example, a Remote Display has been added as a contact using Address **0123464**.
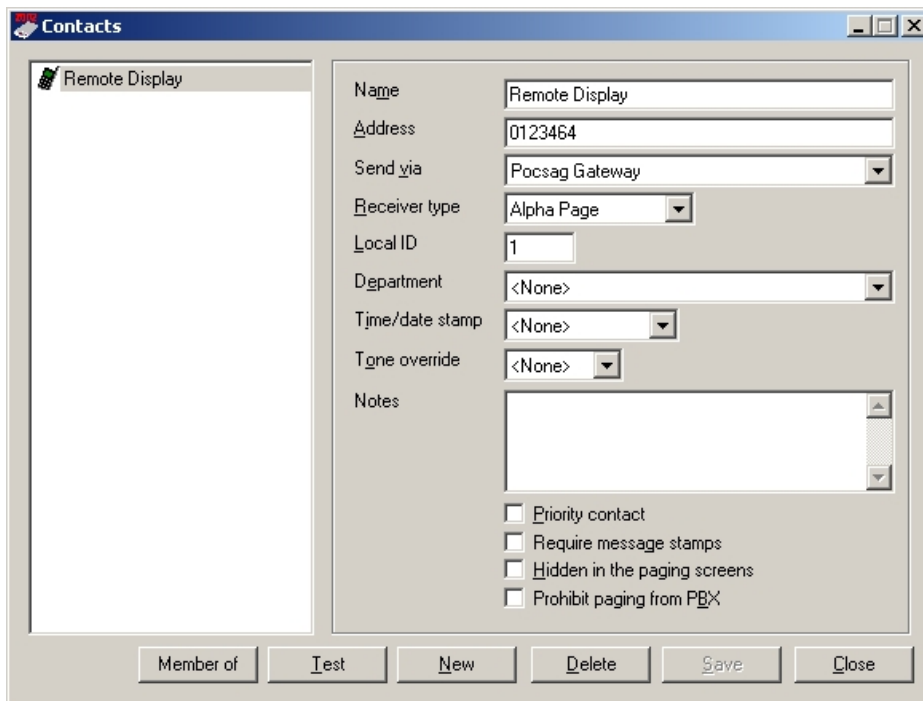
7.2   Clients Settings

Alarm calls generated by a SmartLink Client can be sent directly to a LED-DEC W07 Remote Display or as part of a Group, Roster or Call Escalation (repeat paging). The following example will send an alarm call messages to the LED-DEC Remote Display defined by the **Contact** details.
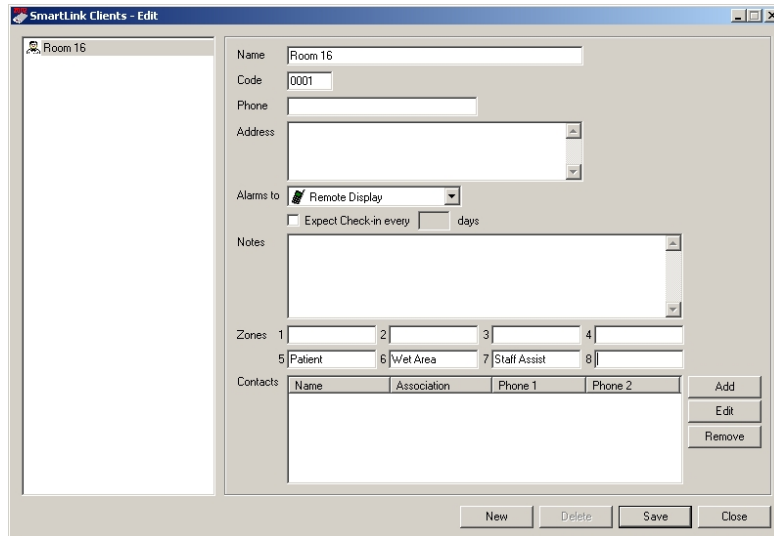
NOTE: Alarm Call Messages displayed on the LED-DEC W07 Remote Display are defined by the descriptions for Zones 5, 6 and 7 where Zone 5 is used for both Patient Call and Emergency messages.

For more information on software installation please refer to the SmartWatch XP Installation Manual.

7.3   Display Fallback Message Settings

The Fallback Message is displayed when no alarms are active.
The default Fallback Message is ********* and can be changed by sending the message **SmartLinkDisplayFallbackMessage** followed by the new text. For example, the following message would set the Fallback message to "Have a nice day".
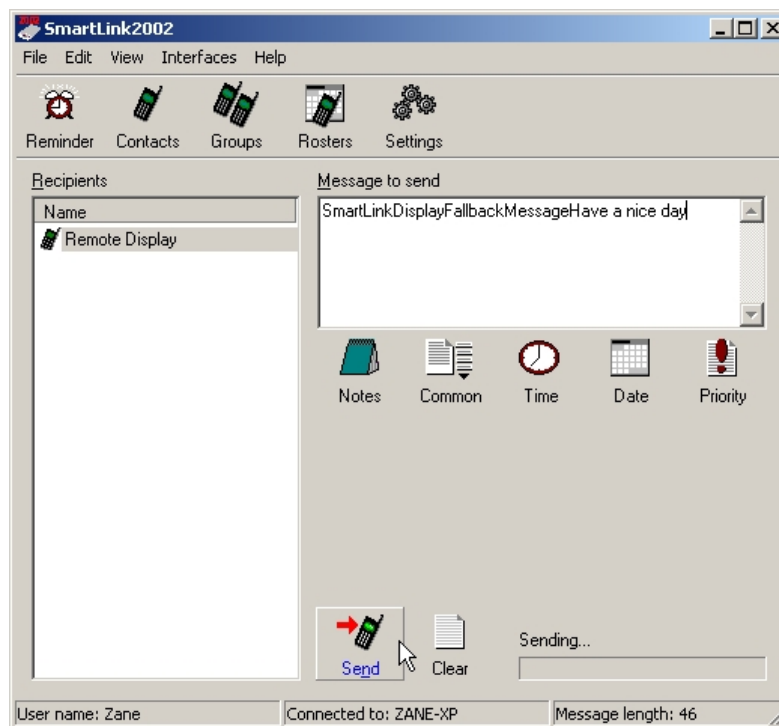
7.4 Display Master Reset Message Settings

Resetting the unit will erase all stored calls. This can be done with a momentary press of the **RESET** button (which is located on the right s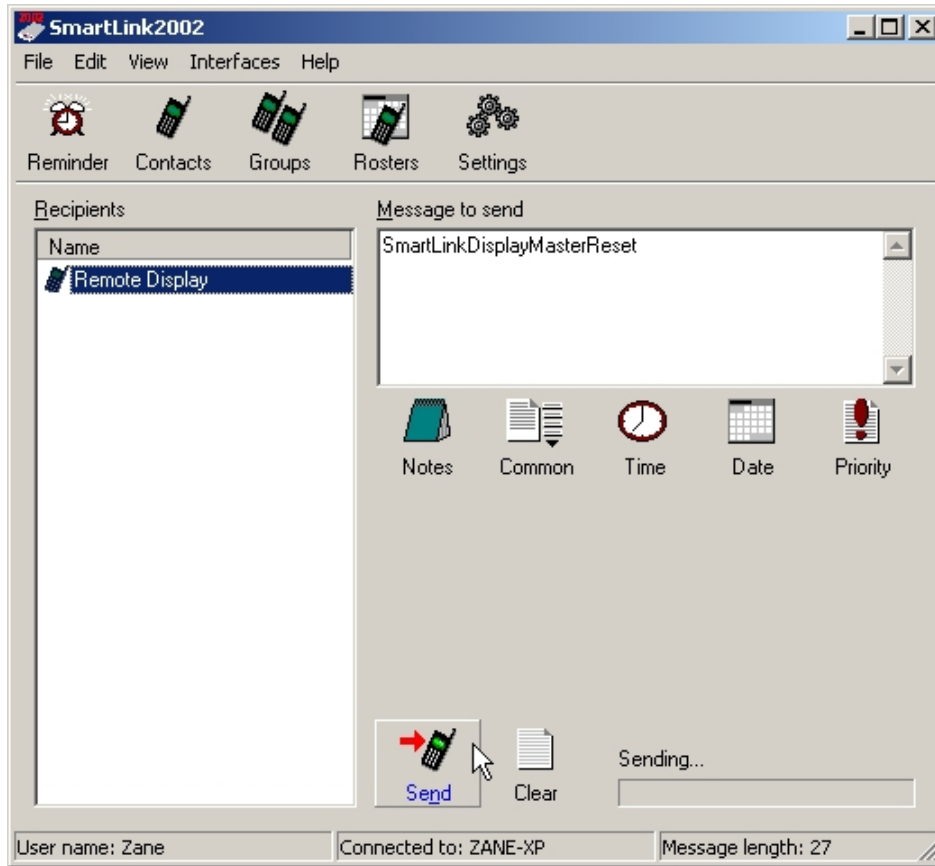ide of the unit). After a reset the unit takes approximately 3 seconds to clear the flash memory, at the end of this time the unit will beep indicating it is ready to receive a call.

Resetting can also be done, by sending a page with the keyword **SmartLinkDisplayMasterReset**.

There are two things to consider when resetting the unit. If the unit is reset during a page reception, then that page may be missed. Secondly, the page in which messages are stored in the flash memory device is rotated to even-out the wear on the flash memory. Resetting the unit also resets this rotation to the start of the chip, therefore resetting after each call would reduce the life of the flash memory device.

Note that resetting the Decoder unit will return the Fallback message to its default option.

8. POCSAG Paging Data Input

*The POCSAG (**Post Office Code Standardization Advisory Group**) Input data rate is 512 bps, higher bit-rates are not supported.*
The input has three polarity options.
- Normal (default),
- Inverted
- Auto.

The default 'Normal' operates with the optional onboard receiver.
If the *external* POCSAG data input is used, the polarity may need to be inverted depending on the source device generating the POCSAG data.
If the polarity of the POCSAG data cannot be determined, the 'Auto' option can be used to auto-detect.
Note that auto polarity cap codes 52088 to 52095 cannot be used.

8.1 Decoding POCSAG Messages

The **LED-DEC W07 Remote Display** expects to receive alarm calls in the following format:

`[Text Description] Cancelled Priority #Zone`

A text description of the **Clien**t should be contained within square brackets, any keywords defining the **alarm type** and **zone** must be outside these brackets. If the keyword "**Cancelled**" exists either before or after the brackets, this identifies the page as being a **restore**.

Priority keywords must be located after the brackets; there are five levels of priority:

1. **"Emergency"**
2. **"Call" + "Staff Assist"**
3. **"Call" + "Wet Area"**
4. **"Call"**
5. **"Nurse Present"**

A **#** followed by a numeric digit in the range **1** to **8** must be found and determines the **alarm zone** (or channel). This must come after the priority keyword. If this is not found the page is ignored.

The combination of **zone**, **priority** (call type) and **text description** within the square brackets is used to identify which message is to be removed from the display queue.

Examples: Activation: "[Room 13 Bed 9] Emergency #4"

                        Restore: "[Room 13 Bed 9] Cancelled Emergency #4"

Note:

- The maximum length of a paged message is 99 characters.
- Keywords are **not case sensitive**.
- Keywords can be edited using the menu, and have a maximum length of 13 characters.

Other **fixed keywords** include:

Message	Meaning
SmartLinkDisplayMasterReset	Used to remotely reset the Decoder unit and display.
SmartLinkDisplayFallbackMessage	Used to change the fall back message.

When "*SmartLinkDisplayFallbackMessage*" is received, any text following this becomes the fallback message that is displayed when the unit is idle.

When "*SmartLinkDisplayMasterReset*" is received, the unit will clear all messages and return to the fallback message. This can also be done using a remote hardwired input.

8.2 Pager Message Formats

Messages sent to the LED-DEC W07 have one of the following purposes:
- None - if the CAP code is not recognized.
- Add - a new message to the message stack.
- Remove - a message from the message stack.
- Reset - remove ALL messages from the stack.
- Watchdog - clear the watchdog timer only.

8.3   Cap Codes (RIC)

Received messages must be sent to one of the following CAP codes.
- Global CAP code (default 0123464), message will affect ALL 16 displays.
- Watchdog CAP code (default 0123456), message will ONLY reset the watchdog.
- 321408, message will be 'Emergency' level, if plain format is used, affects all displays.
- 321416, message will be 'Assist' level if plain format is used, affects all displays.
- 321424, message will be 'Wet area' level if plain format is used, affects all displays.
- 1 of 4 CAP codes configured for any of the 16 displays (64 CAP codes total).

8.4   Message Parameters

The LED-DEC W07 determines, or assumes certain message parameters, dependent on the input format used.
- Priority.
- Auto cancel option.
- Night / Day volume.
- Client Code.
- Zone.
- Display text.

8.5   Priority

There are 6 possible message priorities:
- Emergency (highest).
- Assist.
- Wet Area.
- Call.
- Diagnostic (also referred to as Nurse present).
- Fallback (also referred to as Idle).

Each priority level has independent options for display colour, display mode, and cadence.
Higher priority messages are always displayed before lower priority events.
The *fallback* priority displays a message, when no other messages are pending.

8.6   Auto Cancel

With some input formats, it is not possible to cancel a message by means of a POCSAG transmission. In these cases messages must time out automatically.

8.7   Night/Day Volume

This parameter informs the device if lower volume cadences should be used. It does not affect Emergency priority messages, which will always sound full volume alerts.

8.8   Client Code

This is a number used for identification purposes.

8.9   Zone

This is a number used for identification purposes.

8.10   Display Text

This is the text shown on the Display.
In some formats, this is also used for identification, and may have some processing applied before being displayed (for example, the SmartLink format removes the [] characters before displaying the message).

9. SmartLite LED Displays

9.1 Display Types (Addressable or Non-Addressable) ***Important***

Addressable Displays (SSADR-50-16 and DSADR-50-16):

When using addressable SmartLite Displays, the displays should be configured in the Addresses range 1-16. **Displays must NOT be left at the default Address of 00.**
Multiple Displays can share the same Address, providing identical operation of all the like-Addressed displays.
LED-DEC W07 will use separate CAP Code and priority filter settings for each of the 16 unique Addresses.

Non-Addressable Displays (SS-50-16 and DS-50-16):

Multiple Non-Addressable SmartLite Displays can be used, however the DEC-DEC W07 does not have control over the individual displays. Only the settings for Address 01 apply.
Non-Addressable displays cannot generate tones. The external Speaker Output must be used in this mode, or the relays can be used to activate external audible alerts.

9.2 Displaying Messages on LED Display

The information that will be sent to the LED display will be the **Text Description** followed by the **Priority** of the call.

`Text Description Priority`

Examples 1.

Received Message by the LED-DEC W07 Remote Decoder via POCSAG receiver:

[Bed 1] Emergency #4

Message sent to LED display from LED-DEC W07 Remote Decoder:

Bed 1 Emergency

Examples 2.

Received Message by the LED-DEC W07 Remote Decoder via POCSAG receiver:

[Room 2] CALL Staff Assist #5

Message sent to LED display from LED-DEC W07 Remote Decoder:

Room 2 CALL Staff Assist

Cap Code	Function
0123456	Reserved for the Decoder unit's Watchdog feature. Do **NOT** use for standard paging.
0123464	Displays SmartLink Alarm Call messages
0123472	Displays SmartLink Alarm Call messages
0123480	Displays SmartLink Alarm Call messages

9.3   Message Selection

Each display cycles through all messages of the highest available priority.
If a new message of equal or higher priority is received, the display will jump immediately to this new message.
If the current display message is cancelled, the display will refresh immediately with the next message of the highest available priority.

9.4   Sounds

Each display message is associated with a tone.
There are a total of 13 alert tones available, and 4 types of presentation pattern.

- Silence – (silence).
- Single – a sound which sounds only once.
- Periodic – a sound that repeats over a specific period of time.
- Repeating – an ongoing sound, such as repetitive beeping.

There is a "Repeat all/cycle" option, which allows single tones to be repeated, each time the display updates.
By default, a tone will only sound once, the first time a new message is displayed.
A 'Periodic' cadence is one which is required to repeat after a specific period, there is currently only one recurring cadence, which sounds a dingdong every 30 seconds. Periodic cadences re-sound and re-start the interval every time a new message is displayed for the first time.
The tone cadences available are:

- Silence   -   silence.
- 2 Beeps   -   single.
- 8 Beeps   -   repeating.
- 8 Slow beeps   -   single.
- Beeping   -   repeating.
- Ding Dong   -   single.
- Ding   -   repeating.
- Ding Dong   -   repeating.
- Dong Dong   -   single.
- Ding Ding Ding   -   single.
- 2 Beeps   -   repeating.
- 3 Beeps   -   repeating.
- Ding Dong   -   periodic 30sec.

9.5   Display Cycle & Call Priority

The display cycle time can be adjusted in the menu from 5 to 60 seconds. Each display period, the display will update to the next message with the highest priority, and sound a cadence. If a message is received which is of a higher priority than the one currently being displayed, the display will update immediately, instead of waiting for the next display cycle. If an incoming call is of lower priority than the call being displayed it will not be shown until all calls with a higher priority are cancelled or the Decoder unit is reset.

The display cycle time can be adjusted in the menu from 5 to 60 seconds. Each display period, the display will update to the next message with the highest priority, and sound a cadence. If a message is received which is of a higher priority than the one currently being displayed, the display will update immediately, instead of waiting for the next display cycle. If an incoming call is of lower priority than the call being displayed it will not be shown until all calls with a higher priority are cancelled or the Decoder unit is reset.

Note that only the messages of the highest priority are displayed. *For example*, if there are 2 Staff Assists, and 1 Wet Area, the Wet Area will not be displayed until both the Staff Assists are restored. When all events have been restored, the display will return to an idle message.

If a **message is never restored**, due to an error with the paging system, then it will be removed after its *maximum life* expires. The maximum life of a message can be set in the menu between **10min and 990min** (16.5 hours) the **default value is 990min**.

The maximum number of messages that can be stored in the Wireless Decoder is **18**. If this is exceeded, then the oldest message will be overwritten by the new message.

9.6   Colours and Cadences (Audible Tones)

When a message is displayed the LED-DEC W07 Remote Display will select a colour and a cadence for the message determined by its type. The colour of the message and the type of cadence for each priority can also be changed using the menu system. The default cadences and colours shown below.

Alarm Type	Colour	Cadence (Audible Tone)
Emergency	Red	Rapid repeating *(1 beep every 1 second)*
Call (Staff Assist)	Amber	Moderate repeating *(2 beeps every 10 seconds)*
Call (Wet Area)	Amber	Moderate repeating *(2 beeps every 10 seconds)*
Call	Amber	Slow repeating *(1 beep every 10 seconds)*
Nurse Presence	Green	No beep

10. Specifications

● **Dimensions**	260mm (L) x 125mm (W) x 40mm (H)
● **Weight**	800 grams
● **12 VDC Input Jack**	12 VDC Jack with a 2.1mm pin (centre pin is positive)
● **Plug Pack**	9 – 12 VDC 660 mA Plug Pack supplied
● **Antenna Connector**	50 Ohm BNC
● **Frequency**	148.3375 MHz VHF
● **SmartLite Displays**	Addressable or Non-Addressable Displays
● **RS232 Port Connection**	Serial Maintenance/Craft Port (DB 9 Pin Female)
● **12 VDC Connection**	Parallel with the 12 VDC Jack Input
● **Speaker Output Connection**	Connects to an 8 Ohm external Speaker
● **RS232 Connection**	Connects to BetaBrite or SmartLite Displays
● **Relay 1 and 2 Connections**	1 Amp (50 VDC maximum)
● **Clear Input Connection**	Momentary Closure to 0 Volt
● **RS485 (B, GND, A) Connections**	Connects to SmartLite Displays

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Unit 4/56 Norcal Rd, Nunawading VIC 3131 Australia
Tel: +61 3 9875 6400   Fax: +61 3 9875 6422
Email: smartlink@ness.com.au
Website: www.smartlink.com.au