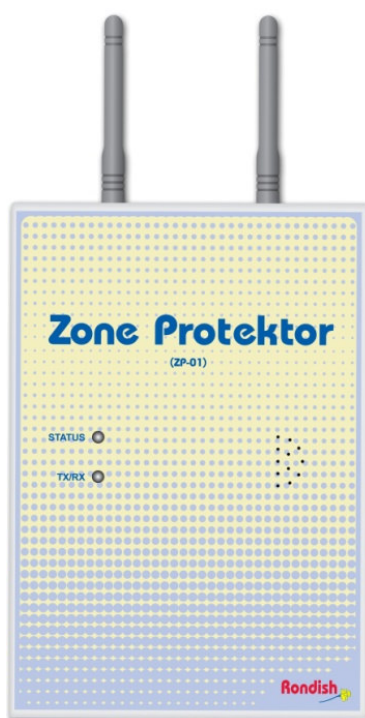




# PROTEKTOR II <sup>TM</sup>

## Long Range Wireless System

VERSION I



## PROGRAMMING MANUAL

ISSUE: 033

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# 1.0 PROTEKTOR SYSTEM INFRASTRUCTURE

## 1.1 System Overview

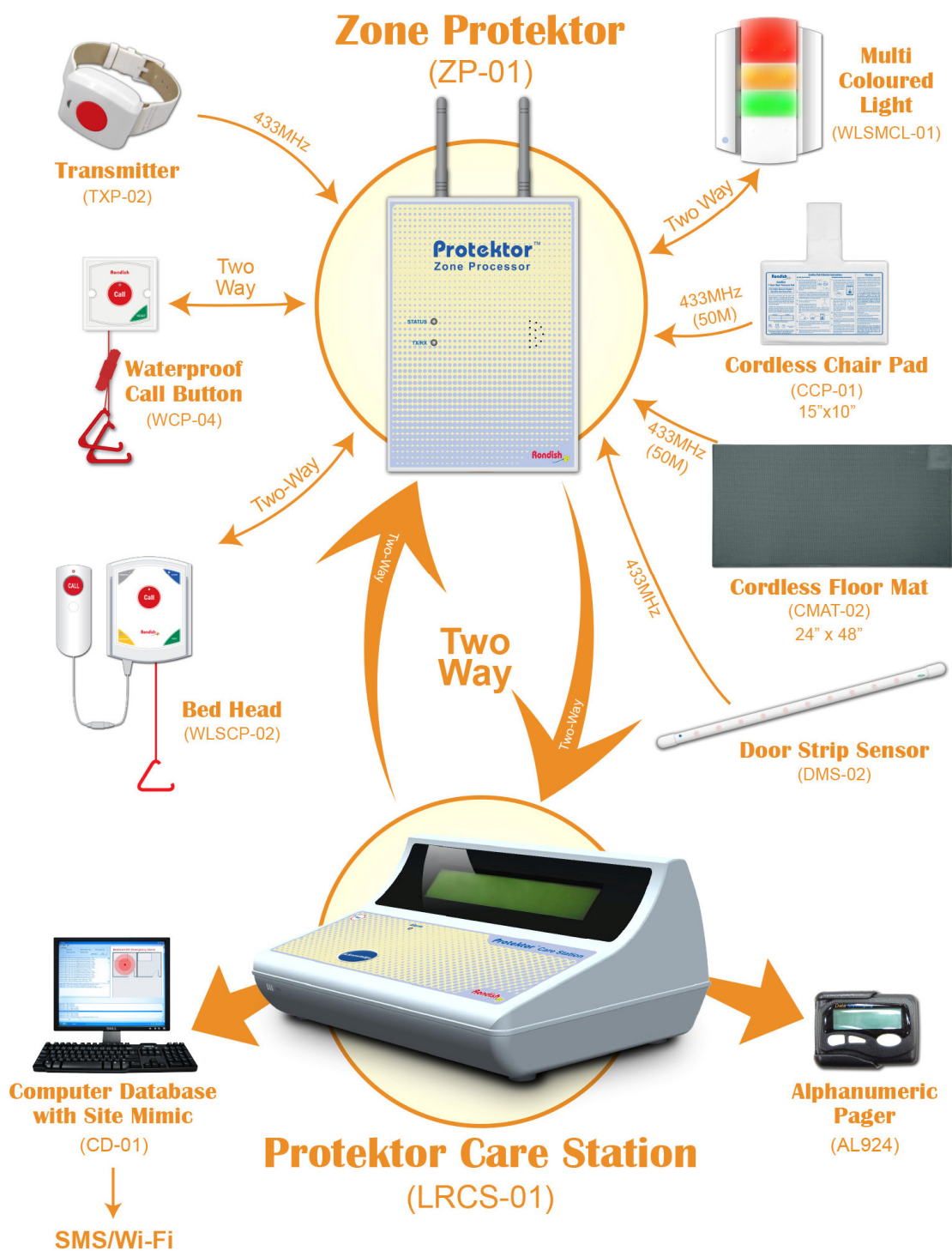
The Protektor II Wireless System uses the latest wireless technology and techniques using a high frequency network with long range wireless signaling.

The Protektor II system offers to the user the benefit of a number of functions not normally available when using wireless as the communication medium.

- (a) Each Zone Protektor area “Node” looks after it’s local zone, continually checking for alarm calls and/or detected fault monitoring signals from within its zone. Field items are monitored for fault, or low battery condition. For added security of operation, this system operates using a secure, two-way data protocol for its networks and devices.
- (b) In the same way that the Zone Protektor unit checks the operational status of all low power devices in its local zone/area, the Master Care Station monitors the operational status of each Zone Protektor node within its system/network.
- (c) This system can provide the location of cordless wheelchair seat sensor/pad, floor mats, or wireless wrist strap/pendant emergency call transmitters. In the event of a fall, a caregiver can be informed where to go to render assistance.
- (d) All network alarm calls and auto detected equipment fault events are reported and displayed at the Master Care Station with ID and Location and may be recorded in a PC database, on a printer with time and date, sent to display pager/s and/or sent via GSM SMS text to mobile phones.
- (e) Warning:** This system complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. You are cautioned that changes or modifications not expressly approved by that party responsible for compliance could void your authority to operate the equipment.

## 1.2 System Layout and Compatible Equipment

# The Protektor System



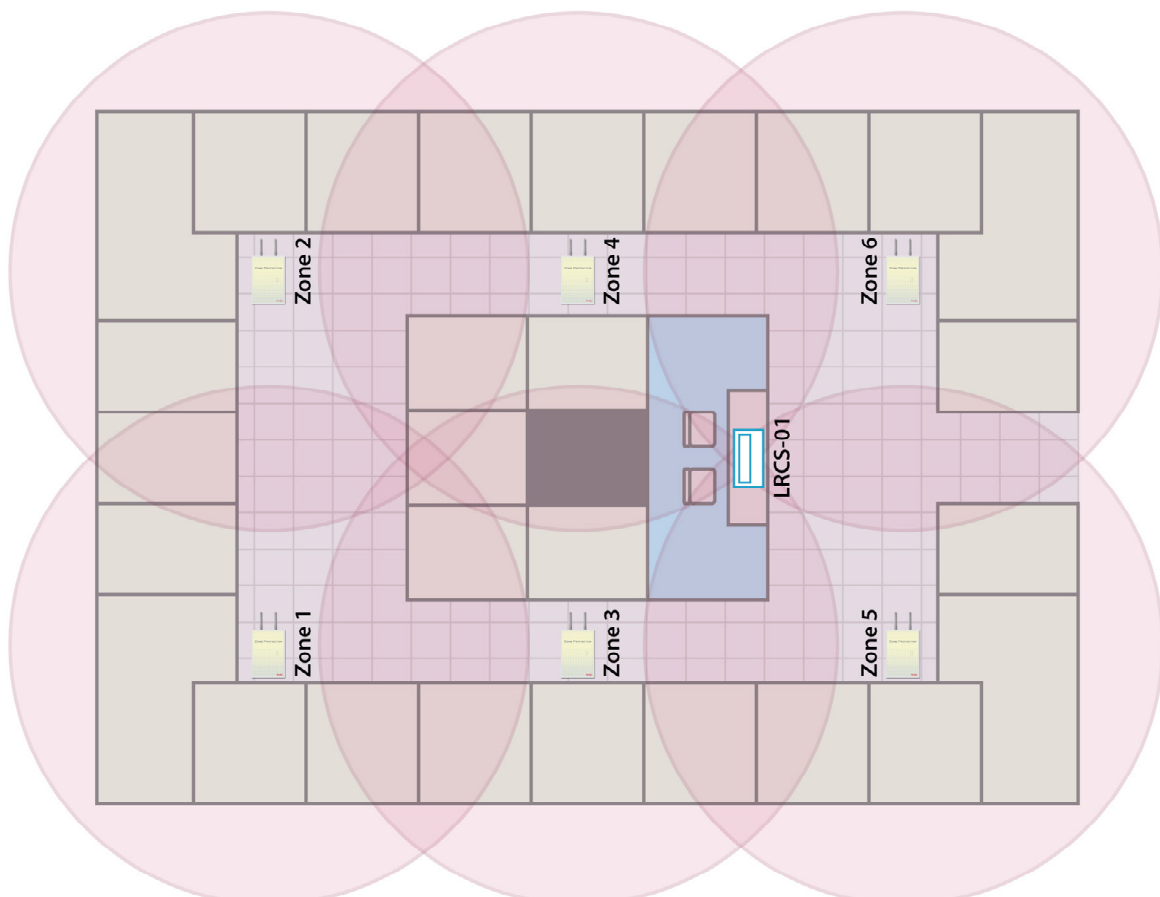
## 2.0 PREPARATION AND PLANNING

### 2.1 Zoning

The Network should be planned based on site surveys to determine the ideal placement for Zone Protektor Units. This will affect the programming of all components in the system; so proper planning is strongly suggested to reduce troubleshooting after installation.

The diagram below provides a basic guide to typical Protektor network layout and High Frequency “zoning” arrangements. As a general rule, Zone Protektor units should be placed every 40m when using Cordless transmitters, or every 50-60m when no Cordless transmitters will be used (numbers are provided for guidance only, and are subject to site testing). The next section will discuss this in more detail.

Each Zone Protektor can accommodate around 15 mobile devices (wheelchairs and wristband transmitters).



## 2.2 Programming

It is recommended that all system equipment should be pre-programmed at tabletop and labeled while completing a record sheet. A sample format is on next page, and Excel template can be provided by Rondish upon request.

This record should be provided to the system technical service and maintenance provider after completion of commissioning and hand-over of the system to the user/operator. This programming record is vital for troubleshooting.

Additionally, the label below is provided to record the programming entered into each call point. Programming can be done before the installation, with each device labeled with the proper installation location. For bathroom units this should be filled in using a waterproof pen so the ink does not run due to condensation. This will be further explained in **Section 5.2**

Programming Record							
Z	Z	A	A	S			
P	L	L	G				
T	F	F	R	R	U	B	B
Location:							

The Master Care Station and Zone Protektor units can be programmed using push buttons, a magnet, and a screwdriver. A System Programmer is required for Call Points and Multicolor Lights.

Beginning with the Master Care Station, the installation programming for the Protektor network and system should be completed in order:

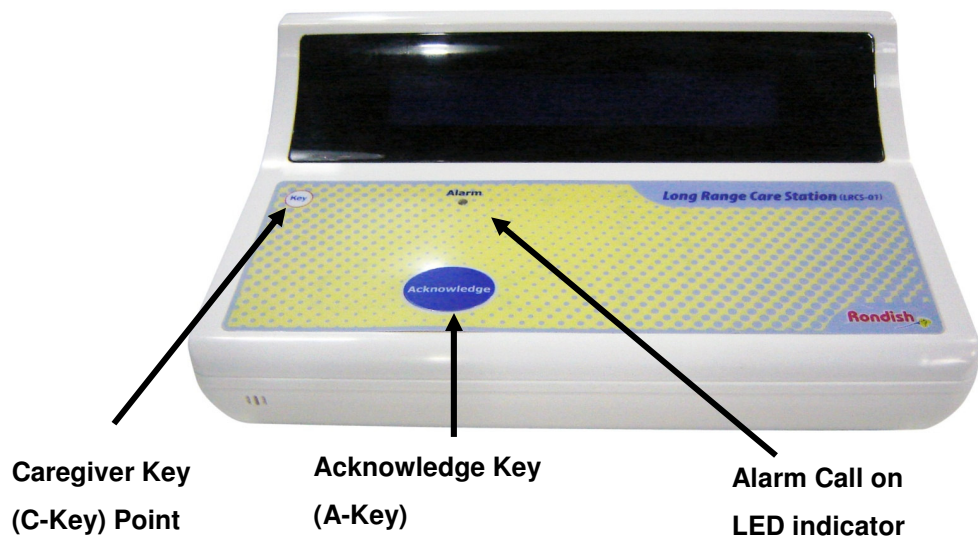
1. Care Stations (System Configuration)
  - a. Master Care Station
  - b. Slave Stations (S1 to S9)
2. Zone Protectors
3. Call Points
4. Indication Lights



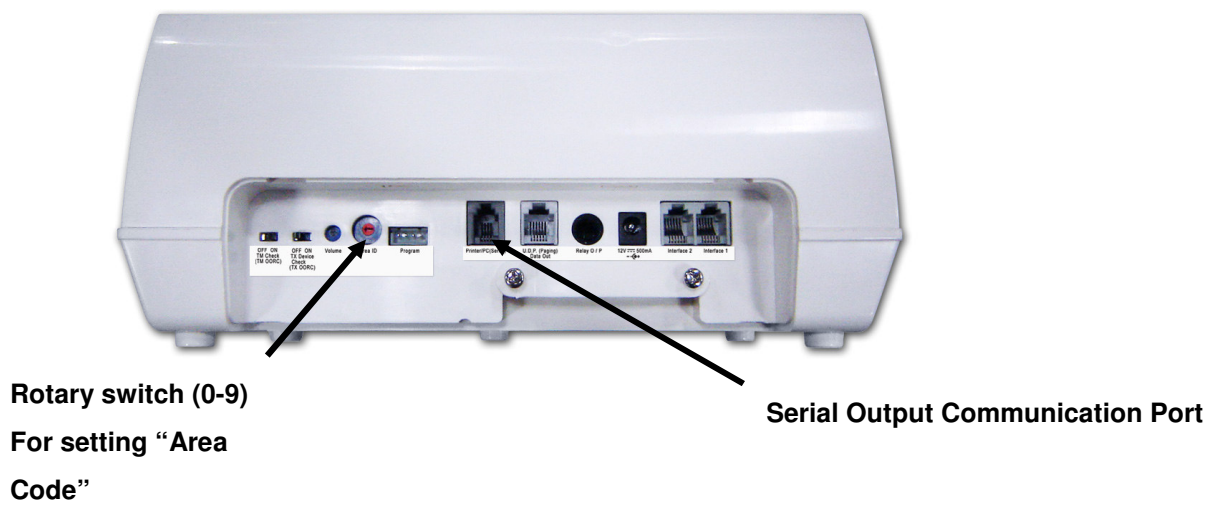


### 3.0 PROGRAMMING THE CARE STATION

PROTEKTOR CARE STATION  
FRONT PANEL VIEW



REAR PANEL VIEW



## 3.1: System Configuration

To enter the **System Configuration** menu, apply and simultaneously hold the Caregiver Key (**C-Key**) and Acknowledge button (**A-Key**). The **C-Key** and **A-Key** will be used to select and navigate through the menu.

When navigating the Care Station menu, use the **A-Key** to cycle through the options, and **C-Key** to confirm the choice.

1. Check RF Channel
2. Network
3. Global Settings
4. Slave Monitor
5. Zone Protektor
6. Factory Default

### 3.1.1: Check RF Channel

This will check the high frequency operating channel (916MHz) for ambient or unwanted RF noise and/or signals. **With no Zone Protector powered up**, the Master Care Station can be used for this purpose.

#### Notes:

1. Channel settings:
  - a. CE version (869MHz band) = **0-4**
  - b. Other regions (the 916MHz band may be used) = **5-9**.
  - c. Factory default is channel **4**.
2. Cycle through available channels **0-4** (916MHz band) by pressing the **A-Key**. The scale will vary from **[000-255]**. Select the channel with lowest average value.
3. Peaks of noise indicated and not exceeding **[080]** indicate a reasonable operating environment for the channel currently selected. There is no upper limit, though higher background signals will reduce system coverage distance.

### 3.1.2: Network

There are 3/4 parameters to be programmed:

#### 1. Network ID

Choose either “0” or “OFF”.

Adjusting this setting to **OFF** will deactivate the high frequency (916MHz) Zone Protector wireless network and turn on the low frequency (433MHz) receiver inside the console for local operation only.

#### 2. Care Station address

This is the **Master Care Station address** (target code) in the network, where the setting of <M0> is factory default and is “48” in the network.

There can only be one Master Care Station in a Network. Therefore, it has a unique “target” address.

#### 3. Set high frequency channel (916 or 916MHz band)

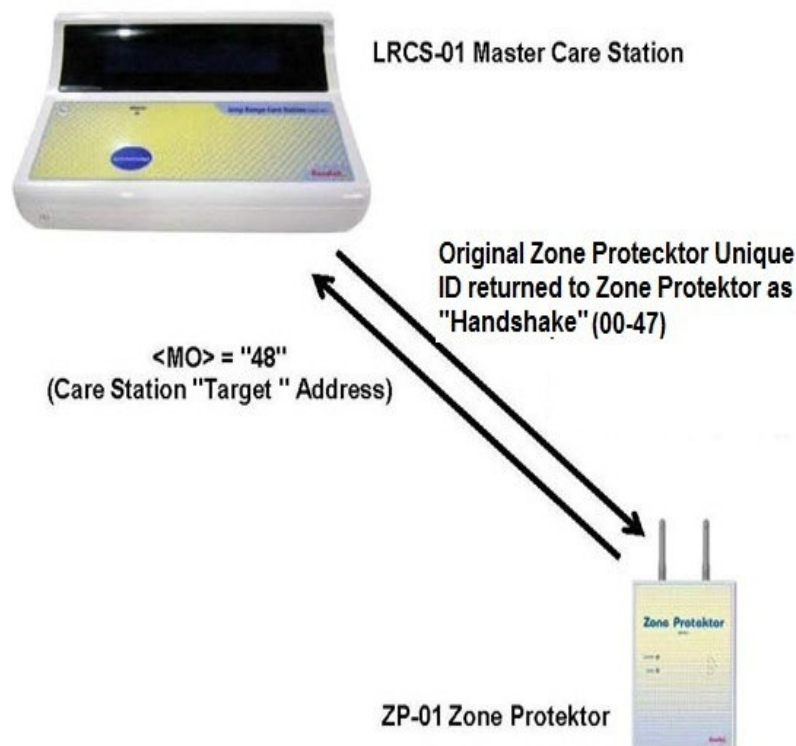
This enables the installer to set the high frequency channel chosen as suitable for use in this high frequency wireless network (factory default 4).

The same channel setting will be used to communicate long range with all Zone Protectors throughout this particular high frequency network. The reading [035] is typical and is only an example.

#### 4. Hop address (if Care Station is set to be a **Slave Monitor**)

The Next Hop menu will only appear on a Slave Station. Setting <M0> determines that this Slave Station uses “target” address <M0> to communicate with the Master Station. If a slave will be placed far from the Master Station, or multiple floors above/below, it can use a second slave to forward the signal. In this case, Using the **A-Key**, settings S1 to S9 might be selected, which determine the Slave address (target) code..

## Master Care Station and Zone Protektor Configuration:



### 3.1.3: Global Settings

#### 1. Room Type Setting

Each call point is programmable to show various types of locations. Adjusting the BAT code on the Master Care Station will change the default room type for call points in the system.

"BAT" = **B**uilding **A**rea **T**ype.

There are 6 options - Use the **A-Key** to choose the desired setting:

< 1: Room > < 2: Flat > < 3: Ward > < 4: Home > < 5: Apt > < 6: Area >

#### 2. Serial Output Communication

This setting is for the serial output at the rear of the Care Station (see diagram on page 7).

It can be set to < **0: Printer** > or < **1: Pager-TX125** >.

Choose “Printer” if you will record alarms with a Dot Matrix printer or Rondish software database.

Choose “Pager” if using a TX125 transmitter to directly signal POCSAG pagers.

### **3.1.4: Slave Monitor**

Up to 9 Slave Care Stations may be operated from the Master Care Station. Slave Monitor/s can be set as “enabled”, or “disabled” here.

These can be configured to display alarms only in a particular Area/Site. (refer to Pages 12 and 18)

Use the **A-Key** to “**Enable**”, or “**Disable**” each Slave Monitor, from **S1 – S9**. If no Slave Monitors will be used, these should all be **disabled**.

### **3.1.5: Zone Protektor**

This display shows the signal strength between the Master Care Station and each Zone Protektor, along with its next hop and handler address. No adjustment is required at this display.

#### **Notes:**

1. When a Zone Protektor has been powered up and programmed, its **network** and **individual ID** will appear below “**ZPID**” (for example **0-40**) where **0** is the network ID and the Zone Protektor ID is **40**.
2. The strength of the incoming signal received at the Master Care Station from this Zone Protektor will be displayed below **RSSI** (Relative Signal Strength Indicator) as a numerical value (e.g. **[095]**). Typically, it should not be less than say “**065**” when this Zone Protektor is transmitting and can provide an indication of the reliability of the high frequency wireless link. If a Zone Protektor shows low signal strength, try adjusting its location or positioning as building layout can affect signals.

### **3.1.6: Factory Default**

This section will return the Care Station to factory default settings, and display the current software version installed.

### **3.1.7: Area/Site Code**

A facility will often want a nurse station to only see alarms from the same floor, local area, or ward. Using different area code settings will allow a Slave Monitor to display only local events.

The area code is adjusted by the rotary switch at rear panel shown in the picture on **page 7**, and can be adjusted with a small screwdriver. The rotary switch would normally be set to “0” (factory default) meaning it can decode signals from any Zone Protector on the same wireless channel setting.