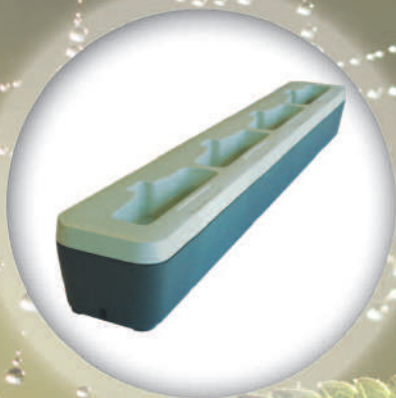# EkoTek
Tech Sheet

EkoTek

Personal Security System

EkoTek Personal Security System provides two-way communication to user devices, allowing them to raise an alarm and receive messages from team members to know help is on the way. EkoTek is a battery operated mesh network based on the 802.15.4 standard which can be easily implemented within a building without routing wires.

Both the call fob and pager devices have an IP67 rating, and are suitable for spraying or immersion in shallow water or suitable disinfectant.* The cases are also able to handle daily wear and tear, passing drop tests up to 1.2m.

Call Assist Fob

The call fob allows an assistance call to be generated either by the user pressing a button, or automatically by the dead-man or man-down features. Accurate location information is regularly obtained from the repeater network and relayed to teams for immediate assistance.

EkoTek Assist Pager

The pager is a multi-functional device, displaying received messages with acknowledgement, plus the ability to generate an alarm from the button, snatch cord (panic), dead-man or man-down features. Its multi-coloured display shows alarms from other pagers and call fobs, allowing the user to accept the alarm and signal back to confirm that assistance is on its way.

Two Levels of Alarm

For both the EkoTek pager and fob there are two levels of alarm.

Emergency alarms:
- Emergency red button: Single or double press raises an alarm with escalation
- Man-down: On suffering a fall, an alarm is raised with escalation
- Dead-man: Raises alarm if no response is received to a scheduled request (with escalation)
- Snatch alarm (pager only): Raises alarm if pager is snatched from the user

Assist alarm:
- Assist blue button: Single or double press raises an assist alarm without escalation.

*tested with Virusolve and Salveson disinfectants

Hub

The hub is the system's central control unit, displaying assistance call messages, the calling user and location. Device configuration can be changed using a PC running web browser software. Network and device data can be collected. Pager messages, production of groups of pagers and location display allow call fob or pagers users to be located, and communicated to.

EkoTek systems can be extended into remote areas using Synchronized Ethernet Repeaters (SERs). Up to 8 SERs can be used to extend a system.

Standard hub: Provides networks of up to 500 devices.

Maxi hub: Provides networks of up to 750 devices.

Warm Standby

By using two Maxi hubs the EkoTek system can handover to a second hub in event of main hub failure. In addition SERs are capable of sustaining their communication network without connecting to a hub, for complete resilience.
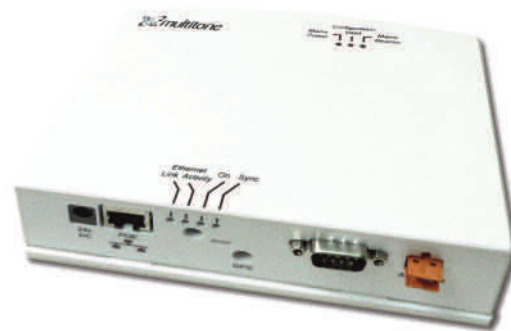

SER - back view

Repeater

Repeaters form the mesh radio network and are battery operated with a battery life of up to 2 years (dependent on use).

Self forming and self healing network provides resilient communications paths at all times.

Syncronised Ethernet Repeater (SER)

The Syncronised Ethernet Repeater allows ethernet connection to a remote repeater cluster and provides network segregation for better radio management.
The SER manages its own radio network in case of hub failure.

Key Features

- Single button press generates an automatic escalating alarm

- Two-way communication with an alarm response received when accepted by a colleague

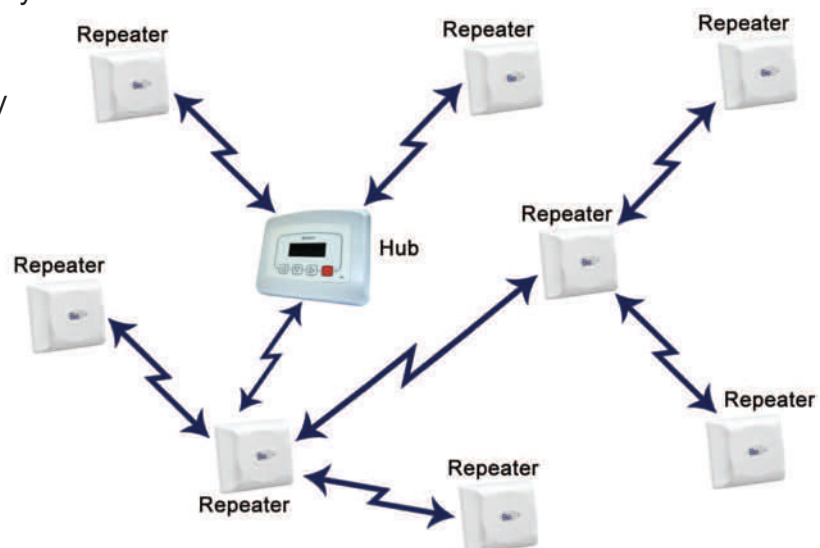- Easy to retrofit with long life battery technology

Technical specification

Radio Performance

- Radio frequency: 2405-2480MHz
- Radio channels: 16
- Channel operating mode: Fixed frequency, or frequency hopping
- Maximum no. of radio channels simultaneously used per system: 16
- Radio power: 10mW
- Radio coding: modulation format OQPSK DSSS IEEE 802.15.4
- Network coverage optimum spacing: 10m repeater to repeater

Electrical Specification

- Standard hub power: AC-DC power adaptor
- Standard hub back-up batteries: 3 x C cell NiMH rechargeable batteries
- Maxi hub power: AC-DC power adaptor
- Repeater power: 2 X D cell high capacity alkaline manganese batteries
- Pager power: 1 X NiMH rechargeable battery (non-removable)
- Call fob power: 1 X NiMH rechargeable battery (non-removable)
- Mains powered repeater power: 9.5-15V DC 15mA, with proprietary rechargeable battery pack as back-up

- Charging rack: AC-DC power adaptor
- Call point power: 2 X D cell high capacity alkaline manganese batteries
- Synchronized Ethernet Repeater: power over ethernet with a back-up of 2AA NiMH rechargeable batteries
- Mains powered call point: 11 – 15V 25mA, with proprietary rechargeable battery pack as back-up
- Operating time:
  EkoTek pager: up to 2 weeks*
  EkoTek fob: up to 4 weeks*
- Battery life: 2 years from data of purchase under normal operating conditions
- Mains powered repeater: 11 – 15V 25mA, with proprietary rechargeable battery pack as back-up.

System Maximums

- Standard hub:
  Max no. of pagers: 127
  Max no. of devices per system: 500 (inc. pagers, fobs, repeaters and hub)
- Maxi hub:
  Max no. of pagers: no restriction
  Max no. of devices per system: 750

External Connections (hub)

- 2 x serial port: 300 – 9600 baud
  Port A: ESPA input/output
          TAP input/output
  Port B: TAP input
          ESPA input

Note: TAP & ESPA protocols are not standardised and require tests for compatibility.

*dependent on usage

Fob

- Dimensions: 65w x 42h x 17d mm (clip excluded)
- Weight: 41 g
- Belt clip and lanyard
- Emergency and Assist Alarms buttons
- Mandown and deadman

Pager

- Dimensions: 86w x 60h x 22d mm (plus belt clip)
- Weight: 85 g
- Belt clip
- Emergency and Assist Alarms buttons
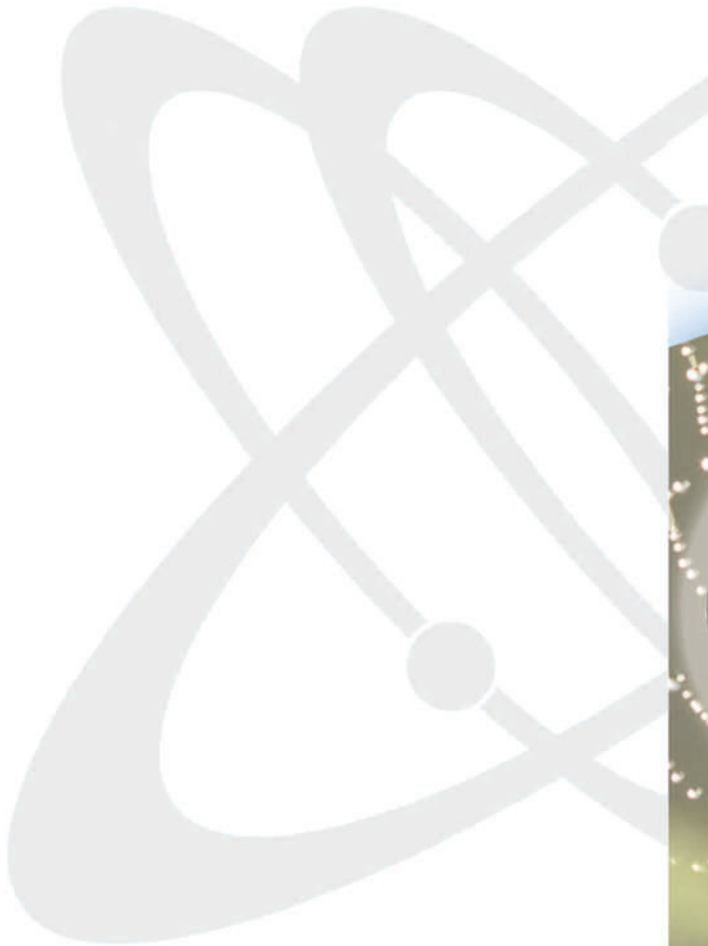- Mandown and deadman
- 4 line character variable colour display.

Repeater

- Dimensions: 100w x 48h x 88d mm
- Weight: 122 g excluding batteries
- Fixing: two screws (not included) fixing to ceiling

SER

- Dimensions: 160w x 44h x 130d mm
- PoE injector required for power
- Autonomous operation of subnetwork
- Maximum of 8 SER to each hub

multitone

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