

### AN-420 Mesh Unloader Data Sheet



- Create real time data logging & management networks
- Separate radio links to Mesh Data Wand and Mesh Network
- High performance flash CPU
- Highly tuned CDMA/CPMA predictive software
- Real time clock for logger sync
- Internal buffering of 4095 records
- Designed and Manufactured in Australia
- Site and customer unloading customization

#### **Description**

The identiMESH Mesh Unloader is the future of staff attendance verification technology. It provides foundation capabilities upon which advanced systems with revolutionary capabilities are based.

Mesh Unloader comprises two radio links and a high performance central processing unit. It simultaneously manages extraction of data from a quantity of "data logging wands" in proximity to itself and also passes the data into a "Mesh Network" wide area radio data link. Mesh Unloaders' intelligent memory management unit handles data entering from the "data logging wands" and at the same time exiting out to the Mesh Network for a central computer system to store, monitor and analyse.

Additional functions have been built into Mesh Unloader for management, control and diagnostic operations on data logging wands in proximity as well as direct internal logging of "kiddie badges".

**Application** : Real time staff attendance verification.

A large retail area such as a shopping centre has a quantity of Mesh Unloaders spread around its many levels of shopping space. Staff carrying radio attendance logging wands have data extracted from their wands as they come into regular proximity to Mesh Unloaders. A Mesh Network extracts the data and feeds it back to a central computer system for storage, analysis and reporting.

**Application** : Real time tracking of "kiddie badges" to monitor access or exit from strategic areas.

A typical new application is for small "radio badges" attached to children. As children come into proximity to Mesh Unloaders their presence is logged and reported via the Mesh Network back to a central monitoring station where action can be taken. The application of tracking children is of immense benefit in large retail areas where "at risk" children can be monitored.

#### **Companion Software**

The "identiMESH PC" software extracts data from a network of Mesh Unloader units, stores the data on disk, generates real time reports and performs key management and maintenance tasks. Extensive use of internet technology has been made use of for reporting and proactive notification of status and fault information.

### ***In Brief***

Mesh Unloader contains;

1. A computer, memory, real time clock, indicator leds and supporting circuitry,
2. A radio link that extracts data from nearby Mesh Wands,
3. A Mesh Network radio link (at a separate frequency) to extract data from the Mesh Unloader and transport it back to a data processing “data engine”.

### ***Operation Outline***

Mesh Unloader regularly scans for any new Mesh Wands entering its proximity. Once “discovered” they are interrogated and data transfer happens quite quickly.

As new Mesh Wands enter and other Mesh Wands leave the area, Mesh Unloader remembers the current status using the 64 entry “Wand Table”. This databases and manages inside Mesh Unloaders’ computer chip up to 64 simultaneous Mesh Wands. It determines the amount of data in each wand, when they entered other status information.

At the same time, the master PC called the “data engine” can be sending commands to the Mesh Unloader through the Mesh Network. The Mesh Unloader takes these commands and actions them. For example, data may be requested from the Mesh Unloader – the command arrives and the Mesh Unloader responds by sending data back to the master PC.

On the front panel of Mesh Unloader there are eight (8) status indicator Leds. These show instantaneous status of the device.

## **Indicators**

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<b>Indicator</b>	<b>Meaning</b>
Working	Flashing means the unit is “ticking over” working
Mesh Unloading	Indicates that commands are being received from the master base data engine – the PC and identiMESH program.
Wand In Proximity	Indicates one or more wands are close by
Wand Unloading	Indicates that a data wand is having its data extracted
Memory Full	Indicates memory in Mesh Unloader is full. Unloading stops.
Mesh Unloader Clash	Lights if two or more Mesh Unloaders are too close together.
Internal Fault	Some error has occurred – it may be that the real time clock requires information from the centra PC after a reset.
Radio Noise	Indicates broken data was received. This happens when something in the area interferes with the system.

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### **About Mesh Unloader**

At Elite-ID we consider Mesh Unloader to be rather clever! It has more software in it than any other product. It has also taken more time developing and more time testing than any other product.

Mesh Unloader is a highly intelligent device that has taken a significant amount of engineering time optimising to suite the environmental conditions it operates within and also to provide the features required.

Q1. What happens when a Mesh Wand is empty?

A1. Mesh Unloader skips empty wands and unloads non-empty Mesh wands of course. It has been highly tuned for efficiency.

Q2. How does it discover wands in proximity?

A2. It uses four proprietary methods to discover all wands in proximity. The details are our intellectual property and the result of years of study and work and testing. This is not a trivial aspect of Mesh Unloader.

However, we do disclose that it does work well!

Q3. What happens when two or more Mesh Unloaders are in proximity?

A3. They take it in turns, at random times, to each extract data from passing Mesh Wands. If they both did this at once there would be "confusion". It is much better to have them separated anyway so that Mesh wands are kept in proximity more often.

Q4. The limit of 64 Mesh wands stops us from having more than this on a site?

Q4. No. No. No. The limit is any 64 wands in proximity to the Mesh unloader. If a Mesh Wand moves out of proximity it frees up the space for another. Also, more Mesh Wands will just be ignored till there is a free space for them to be managed by Mesh Unloader.

Q5. What about radio congestion and loss of Pulsar logging?

A5. This refers to the Mesh Unloader causing Pulsars in proximity to be ignored by wands. This not a problem. We have designed Mesh Unloader with this in mind and tested it extensively. Also, the Pulsars are designed to minimise or eliminate this problem.

Q6. Of necessity, Mesh Wands will move near and away from the Mesh Unloader. How does it handle the data-loss of signals as they fade in and out?

A6. This is of course expected and handled in a number of ways to ensure that both all the data from the Mesh Wand(s) is extracted and that it is collected accurately and error free. There are a number of techniques used in both Mesh Unloader, the Mesh Wand and the identiMESH PC that target these issues.

However and most significantly, the system has been heavily tested and checked for these kinds of problems.