

## ICESPY SYSTEM 5: ECHO FUNCTIONAL SPECIFICATION

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### Overview

- A device for forwarding data between Scout (or ScoutPlus) units and Base or Bridge units
- Communication to/from Scout/ScoutPlus by low-power radio link
- Backup battery supply for continuous operation during power failure up to 6 hours

### Functions

- Radio module for collection and verification of radio broadcasts from Scout
- When working in conjunction with Bridge, enables extended distance one-way (broadcast) and two-way communication (commands can be sent and responses received) between Scout and PC *To be implemented Q2 2006*
- When working in conjunction with Base, enables extended distance one-way communication (broadcasts only) between Scout and PC
- Verification of data before retransmission
- Display of operating conditions via front panel:
  - LED to indicate mains power, battery operation or no power
  - LED to indicate successful reception and retransmission of radio broadcasts
  - LED to indicate functioning of two-way communications
- Provision of build standard control (software) for each module via communication modules
- Indication of successful broadcast rate sent at regular intervals to any connected Base or Bridge

### Data

- Ability to rebroadcast (one-way communication) messages from an unlimited number of 'unrouted' Scouts, to be received by further Echo units or by Bridge or Base unit.
- Any number of Echos can form a continuous path for rebroadcasts.
- **To be implemented Q2 2006**
  - Maintaining of routing information (two-way communications) for up to 128 Scout (or ScoutPlus) units in a radio network. (In this context, ScoutPlus units count as only one unit although they have two sensors – this is unlike the limit of 64 sensors in a Base)
  - Automatic generation of routing information depending on other Echos in installed system.
  - Routed Scouts can be sent commands for calibration and download purposes
  - At least five Echo units can form part of a continuous routing path for 2-way communications.
  - 2-way communications only possible when working in conjunction with Bridge (not with Base)

### Interfaces

- No communications connections other than via radio. Mains power connection only.

### Low-power radio module.

- Frequency: 433.9 MHz (UK/Europe), licence-free band. ETSI 300-220 standard. Power: max 10mW (+10dBm).
- Transmitter duty cycle <10% (ETSI 300-220 standard)

### Environment / Mechanical / Electrical

- Dimensions: 230 x 170mm x 50mm deep.
- Case Material: ABS
- Weight: 880g
- Operating temp. range: -40C to +40C, humidity 0-90%.
- Dust / Waterproofing: IP65
- Battery: Rechargeable NiMH providing operational backup (except user-interface backlight) for at least 6 hours.
- Mains powered 220/240V 50/60Hz 120mW average. Cable length 1.5 metres

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