ICESPY SYSTEM 5: BASE$_{PLUS}$
Features and Specification

Overview (as BASE except where highlighted in blue)

- The BASE$_{PLUS}$ is the device for collecting, storing and forwarding data to and from the SCOUT (or SCOUT$_{PLUS}$) units, of an IceSpy *System*5. The specification of the BASE$_{PLUS}$ is the same as the BASE excepting that the BASE$_{PLUS}$ has a user interface. A typical *System*5 comprises of a number of SCOUTs (or SCOUT$_{PLUS}$ units), one or more BASE or BASE$_{PLUS}$ units and PC application software. Optional ECHO and external sensors are also available.
- Communication to/from SCOUT and SCOUT$_{PLUS}$ (and legacy IceSpy sensors) by low-power radio link
- Data transferred to external devices (e.g. PCs) by optional plug-in communication modules:
  - Combined USB and RS232 (serial) module
  - Modem module (connection to standard wired telephone lines)
  - Ethernet module (also acts as simple web server to provide graphical data to web browsers)
  - 4-20mA and zero-voltage switch module for external alarms and analogue outputs
- Planned for 2006
  - GSM modem module (using GSM mobile phone system)
  - Wi-Fi (802.11g) module (also providing web server)
- Completely automatic operation, no direct user input required
- Backup battery supply for continuous operation during power failure

Data collection

- Collection and verification of data broadcasts from SCOUT units or from legacy IceSpy sensors
- Passing of verified data to memory devices for storage
- View stored and real-time data directly via communication modules.
- Real-time clock to enable accurate time-stamping of data storage. Clock accuracy: +/- 5 seconds per day. Corrected automatically by connected PC if greater than 5 minutes error
- Signal strength indicator sent to PC for display

Data Management

- Provision for alteration of parameters of sensors and allocating them to physical or logical zones (via communication modules)
- Provision for changing optional alarm parameters, in addition to individual sensor alarms (via communication modules)
  - Alarm if mains power fails;
  - alarm if radio signals fail
  - Repeat alarms at definable frequency
- Automatic sending of alarms:
  - Critical (remote) alarms relayed by email or text message to different personnel for each zone, according to parameters set via PC
  - Critical alarms relayed during periods of power down (provided that complete communication channel has backup power).
  - Alarms can be acknowledged by keying PIN into BASE$_{PLUS}$ (This does not affect PC alarms)
  - By placing sensors into more than one zone, separate alarms can be raised at different times to different personnel.
- Display of operating conditions via front panel:
  - LED to indicate mains power, battery operation or no power
  - LED to indicate successful reception of radio broadcasts
  - LED to indicate functioning of communication modules
- Unauthorised set-up preventable by use of user-level definitions setup up by system administrators
- Display of current *System*5 conditions on user interface of BASEPLUS:
  - Request and view current values on any stored channel of data
  - View alarm settings and other parameters for sensors
  - Flashing keypad and audible indication of alarm status
  - User acknowledgement / cancellation of alarms (option of password protection set up via PC)
  - Request and view signal strength of sensors

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Data Capacity

- Provides storage for data for 64 sensors (dual channel sensors count as two sensors).
- Data recorded for each sensor at 1 minute, 10 minute and 1 hour intervals
- Maximum time capacity (for full set of 64 sensors):
  - 18+ days of records at 1-hour intervals
  - 3+ days of records at 10-minute intervals
  - 7+ hours of records at 1-minute intervals
- Data automatically and continually downloaded to connected PCs for permanent storage in database
- Oldest data overwritten when memory is full

Interfaces

- User interface unit: 12-key keypad and LCD display (2 lines of 20 characters). Touch-sensitive through panel, no moving parts. LED backlight for display and keys, auto-switch off after a period if running on backup battery (resumed by touching of keys)

- Interfaces to other equipment are provided by optional communication modules. At least one, and at most two, of the following units must be fitted and (if two) they must be of different types:

  - Ethernet module to set up and download unit using remote PC on local network or intranet. Also provides web server for display of data direct to common web browsers, e.g. Internet Explorer. Indication of active connection for LED indication on front panel. Regular UDP broadcasts to enable unit to be automatically found by PC
  - USB and RS232 module used to set up and download unit to adjacent PC. Auto-detect of USB or RS232 connection for LED indication. Connectors: USB type 'B' (slave), RS232 D-sub 9-pin male. Regular broadcasts to enable unit to be automatically found by PC. Power input option via USB connection.
  - Modem module: to set up and download unit using remote PC via land telephone lines. Indication of active connection to LED indication on front panel
  - 4-20mA and zero-voltage switch (BMS) module for external alarms and control systems. Conversion factors for 4-20mA output configurable via PC setup.

Available 2006

  - GSM / GPRS modem module, to set up and download using remote PC via GSM network.
  - Wi-Fi (802. 11g) module (also providing web server).

- Provision of build standard control (software versions) for each module via communication modules

Low-power radio module

- A single unit can be fitted with standard (SCOUT) or alternative (legacy) firmware, not both.
- Frequency: 433.9 MHz (UK/Europe), licence-free band. ETSI 300-220 harmonised standard.
- Power: max 10mW
- Standard mode (receiving broadcasts): transmitter not used
- Downloading Scouts : transmitter duty cycle <10%

Environment / Mechanical / Electrical

- Dimensions: 230 x 170mm x 50mm deep.
- Case Material: ABS
- Weight: 800-900g, depending on fitted modules
- Climatic Environment EN 12830 Type A
  - Operating temp. range: 0°C to +40°C, humidity 0-90%. (Display is the limiting factor)
  - Storage temperature range: -20°C to +60°C
- Dust / Waterproofing: IP53, (USB module IP31)

- Battery: Rechargeable Lithium Ion providing operational backup (except user-interface backlight) for at least 8 hours.
- Socket for external power source, 9v dc unregulated 500mA
- Option of external power via USB connector (subject to sufficient current available from USB master as defined by USB 1.1 guidelines)