



## ICESPY SYSTEM 5: SCOUT Features and Specification

### Overview

- The SCOUT is the sensor and logger component of an IceSpy *System5*. A typical *System5* comprises of a number of SCOUT, SCOUT<sub>PLUS</sub> units, one or more BASE units and PC with special PC application software. Optional ECHO and external sensors are also available.
- The SCOUT is a combination of one Sensor (Single channel), housed together with power source (battery), radio transmitter, real-time clock and data storage facilities.
- The SCOUT comprises a single PCB mounted within a custom plastic enclosure. The enclosure is ultrasonically welded to form a watertight enclosure. An external antenna is over moulded onto the plastic case. A wall or shelf mounting fixture is provided as an integral part of the design.
- There is an internal temperature sensor in all units.
- All communication such as upload of settings and download of data is via radio link
- Radio range: up to 1000 metres in free space
- The SCOUT is in continual communication with other elements of *System5*

### Functions

- Measurement, storage and transmission of accurate temperature (and other) readings at predefined intervals
- Automatic fixed recording intervals of 1 minute, 10 minutes and 1 hour
- Can be configured to record maximum, minimum or average temperature during each time period, or (by default) the temperature at the time the recording is made
- Automatic and continual broadcast of current data to BASE units (optionally via ECHO units)
- Can be contacted (using *System5* PC application and BASE unit) to download all stored data
- Alarms:
  - Two LED indicators on sensor, either or both flash every 10 seconds
  - High and low alarm levels configurable via PC in 0.1°C increments
  - Alarm delay configurable up to 3 hours after levels are exceeded
  - Yellow: "all clear"; Red: "alarm state"
  - Both Red & Yellow: all clear now, but alarm has occurred since last download
  - Third (Blue) LED signifies active link to downloading device

### Data

- Unique fixed serial number pre-programmed into each unit.
- Overwrites oldest data when full
- Non-volatile data storage (battery not required for preservation of data)
- Separate spaces (32 characters) for name of recording channel (programmable from PC)
- 8000 date/time/temperature records, divided between three separate logging intervals:
  - 2000 records with 1-minute data, covering the last 33 hours;
  - 2000 records with 10-minute data, covering the last 13+ days;
  - 2000 records with 60-minute data, covering the last 80+ days.
  - 2000 records available for future developments
- Calibration data table. Fully assembled product will undergo an automatic calibration at three set points (10°C/20°C/30°C)
- Build level data (software and hardware versions) retrievable by radio link

## Interfaces

- Low-power Radio :
  - Frequency: 433.9 MHz (UK/Europe), licence-free band. ETSI 300-220 standard.
  - Power: max 10mW (+10dBm).
  - Transmission rate (broadcast mode) approx. every 60 seconds
  - Length of radio packet approx.20-30 ms
  - Transmission rate (polled mode): up to once per hour.
- Setup (configuration) options selected on PC and transmitted by radio link via BASE unit
  - text descriptions for identification
  - values to record (max, min, average or default)
  - alarm levels
  - alarm response time
  - Calibration data for temperature sensor (authorised users only)
- (21CFR Professional only) Unauthorised set-up preventable by use of password in PC configuration
- Download time approx 300 records per second, fully error-checked
- Download includes full configuration details:
  - unique IceSpy recognition,
  - serial number,
  - alarm level and similar settings,
  - received signal level,
  - build standard hardware,
  - software version number,
  - CRC data check value
  - calibration (authorised users only)
- Information transmitted in broadcast:
  - unique IceSpy recognition,
  - serial number,
  - latest value, e.g. temperature
  - CRC data check value.

## Environment / Mechanical / Electrical

- Operating temp. range: -40C to +40C, humidity 0-100%.
- Dimensions: Body length 120mm plus antenna 150mm approx.
- Case: ABS with rubber overmoulding for sealing antenna and LEDs
- Label adhesion to remain firm with the range -40°C > +80°C immersion in oil
- Weight: 80g
- Dust / Waterproofing: IP68
- Multi-purpose mounting clamp for secure fixing
- Battery Sealed into unit, Life >5 years