



**Above:**  
*cr1 base station*

**Left:**  
*rl1000 submersible temperature transmitter*

The rl1000 submersible temperature transmitter is a sensor for use in tough environments where there is a requirement for accurate and reliable temperature data without using wiring.

The transmitter itself is encased in a robust acetal cylinder to protect the electronics from damage. The high stability temperature sensor can be supplied either hardwired to the transmitter body, or on a 350 mm silicone cable. The rl1000 can optionally be supplied with a Lemo-socketed remote probe for use in dirty but dry environments. The sensor can cover one of three ranges: -35...+60°C, -15...+100°C or +10...+150°C.

Each unit contains a micro-controller that switches itself on for short intervals. The measurement is carried out, converted to digital form and then transmitted by low power radio using a bespoke protocol, ensuring complete integrity of the data transfer to the Hanwell cr1 or sr2 receivers. The radio system is fully approved and exceeds all specifications enforced by the relevant national authority. In addition, the system complies with the European R&TTE Directive, which covers EMC and radio specifications and, therefore, a license is not required.

A 'battery low' indication is displayed via the PC software, warning of the requirement for battery change prior to power loss. Further, in the event of total

failure in transmission the software will also flag an alert.

The obvious, inherent advantage of this type of monitoring is zero installation costs with no wiring requirement, disruption or damage to the environment you wish to monitor. In addition, refrigerators, freezers, incubators, water baths or other laboratory equipment can be freely moved about the laboratory without losing data integrity. Simply place the sensor in the area to be covered and switch on. These telemetry units are particularly useful for temporary assignments due to their absolute portability.

Hanwell products are designed with calibration very much in mind. We offer in-house or on-site temperature calibration services, using equipment traceable to national standards. For those customers who have their own in-house calibration facilities, we can provide all the necessary supplementary calibration documentation and software. The rl1000 series transmitters, when used together with Hanwell software, comply with the most stringent administrative controls such as those required in FDA regulated environments.

## Submersible Temperature

**Product Code** RL1000-T-xx  
**Series** Submersible

### Typical Applications

- Monitoring in:**
- ° Incubators
  - ° Fridges
  - ° Freezers
  - ° Water baths
  - ° Walk-in chambers
  - ° Food preparation areas
  - ° Dirty and/or wet environments

### Instrument

**Dimensions:** 167x 40 mm diameter  
**Weight:**  
**Power Supply:** 3.6 Volt AA Lithium battery  
**Battery Life:** 12 months (typical)  
**Case Materials:** Acetal  
**Operating Humidity Range:** 0...100% non-condensing  
**Operating Temp Range:** -35 to +150°C

### Sensors

**Temperature Sensor:** Precision thermistor  
**Range:** -40° to +70° C  
(depending upon probe chosen)  
**Accuracy:** +/- 0.2°C at design T.  
**Resolution:** +/- 0.1°C at design T.

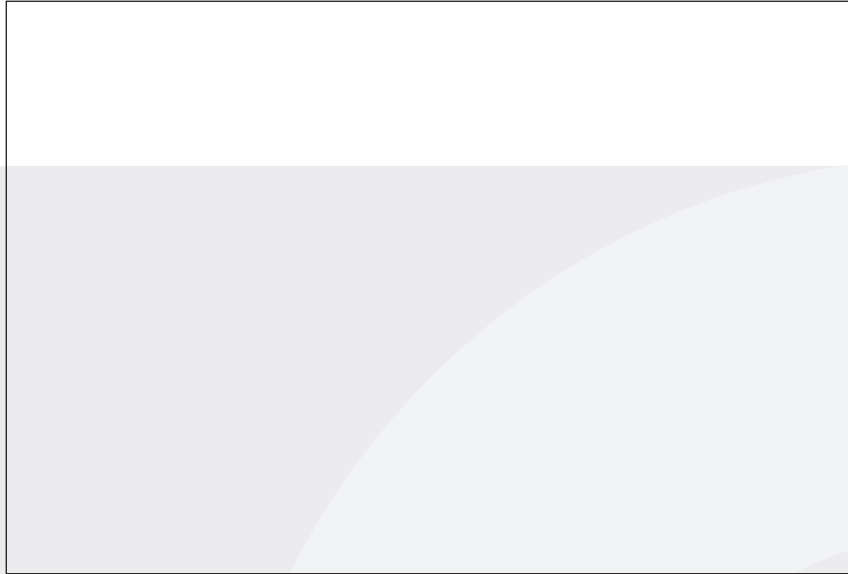
### Radio

**Radio Frequency:** 434.075MHz or 433.920MHz  
**Radio Power:** 10 mW  
**Radio Range:** 3 km over open ground  
**Transmission speed options:** 4 seconds to 3 minutes (standard)

### Accessories

**Code:**

- 25mm long heavy duty probe
- 170mm long heavy duty probe
- Integral food grade thermistor probe
- 120mm x 3mm fast response probe (350mm silicone cable)
- 300mm x 3mm fast response probe (350mm silicone cable)
- 50mm x 3mm fast response probe (350mm silicone Lemo socket for remote probe)



- Detailed arbitration evidence
- Visible deterrent
- Audits carrier and routing efficiency
- Intelligent packaging design

The RD298 ShockLog is a programmable, re usable electronic, tri-axial shock recorder designed specifically to help organisations to reduce the cost of damage to goods whether in production, transit or storage.

A battery life of up to 12 months allows you to understand the entire supply chain life of your product and the conditions it experiences. More importantly it tells you when incorrect physical handling, poor quality packaging or inappropriate temperature and humidity control will have damaged the quality of your product, your reputation and your cash flow.

The comprehensive WindowsT based software programme allows you to programme your own wake up, warning and alarm levels and frequency of data collection. When a programmed impact level is exceeded a visual alarm will alert you as well as storing the data for future analysis.

ShockLog provides you with:

**The when, where and how**

Real time date stamping identifies when a shock has occurred. When combined with the axis of impact, a clear picture of the likely damaging event emerges

allowing effective remedial action to be taken.

**Detailed arbitration evidence**

ShockLog is vital for determining at what point during a journey damage may have occurred. As the information is clear, accurate and incontestable, it is invaluable in arbitration by avoiding unnecessary delays in apportioning responsibility.

**A visible deterrent**

The sheer presence of ShockLog acts as a clear indication that your products are being monitored. By involving your staff, carriers and customers in the monitoring programme, inappropriate handling or storage can be minimised.

**A means to audits carrier and routing efficiency**

ShockLog's sophisticated monitoring capability helps to analyse the cause of persistent damage in transit. Damage that could be avoided by a simple change of route, handling procedure or even

## Shock Log

**Product Code** r18008-xxx.xxx\*  
**Series** rl-8000

**Typical Applications**

- ° Flood detection
- ° Condensation detection
- ° Fridge/freezer failure detection

**Instrument**

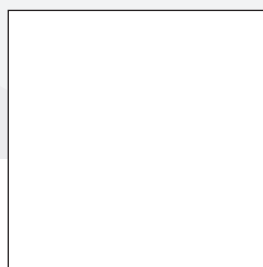
**Dimensions:** 216mm x 117mm x 48 mm  
**Weight:** 780 grams  
**Power Supply:** 2 volts DC  
**Case Materials:** Brushed stainless steel  
**Operating Humidity Range:** 0...90% RH, non-condensing  
**Operating Temp Range:** 10...30C (temperature compensated range)  
**Input Channels:** 8

**Radio**

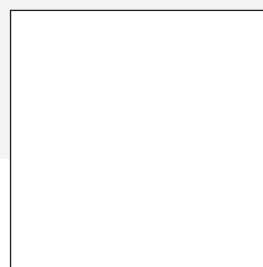
\*Radio Frequency: 434.075MHz  
433.920MHz  
433.875 - 434.650MHz  
in 25KHz increments  
**Radio Power:** 10 mW  
**Radio Range:** 2 miles over open ground

**Accessories**

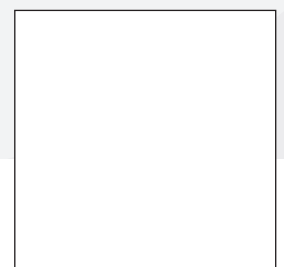
**Code** 5m length (standard)  
or as required  
Nominal 8mm diameter



A. Aerial



B. Sockets



cr-1 base station

