securetemp

Wireless Refrigerated *Trailer Temperature Alert*

A reliable and effective temperature monitoring alarm for refrigerated or chilled trailers

(IN-CAB DISPLAY UNIT)

RF TEMPERATURE TRANSMITTER (TRAILER MOUNTED)

- *Foodsafe self-powered*
- *RF **wireless** sensor/ transmitter*
- *Bold 4 digit LED display*
- *Visual and audible driver alert*
- *Unique Trailer "Matching" feature*
- *-25C to +55C operating range*

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Description

An in-cab radio receiver incorporating a clear four digit LED display and temperature alert, linked via a unique 'search and mate' system, to a self-powered temperature transmitter fitted within a chilled or refrigerated trailer.

Principle

The system is comprised of two separate components:-

- A long-life battery powered RFID integrated temperature transmitter.
- An in-cab receiver with four digit LED display which includes audible and visual indication of out-of-limits trailer temperature.

The Temperature Transmitter

This component is positioned permanently inside the trailer, ideally adjacent to the return air inlet of the refrigeration unit. It consists of an environmentally hardened temperature sensor, a 3.7 volt lithium battery, a low power FM digital transmitter and an antenna – all encased in a completely sealed polypropylene housing. The transmitter carrier frequency is 434MHz with an operating range of one hundred metres.

A unique four digit identity number and the current temperature in degrees Celsius, at half-degree resolution, are transmitted at intervals of approximately one minute. The identity number is also printed onto the housing, together with its bar code version.

Under normal operating conditions, the battery has a life of four to six years.

The In-cab Receiver

The receiver may be installed in an aperture of a truck dashboard central console or, where this is impractical, in any suitable position using the optional bracket. Fixed-tuned to 434MHz (920MHz for USA) , the receiver is powered from the 24-volt cab electrical supply and will draw approximately 150 mA current. The unit may be linked into the vehicle sidelights circuit and will then dim the display to minimise glare after dusk, when sidelights are on.

Structure and Approvals

Temperature Transmitter

The unit is enclosed in a food industry standard polypropylene moulded housing,which conforms to EN-300-220. All seams are welded and internal components are inaccessible.

In-cab Receiver

The receiver is enclosed in a mild steel casing, Zintec primed and Dark Grey powder-coated, rated to IP56.

The four digit red LED display has 25mm high characters protected by clear acrylic.

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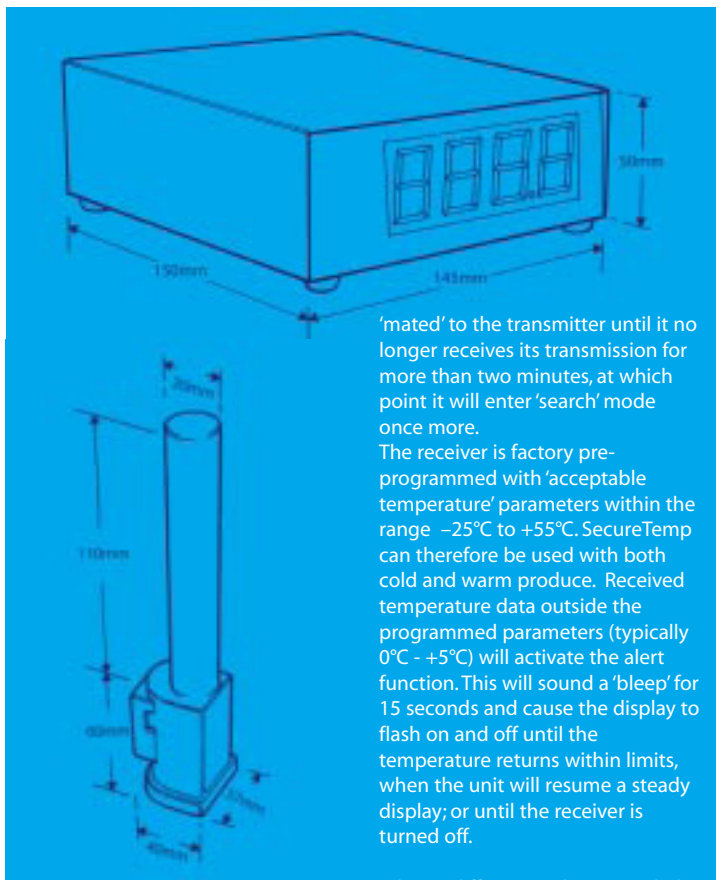

Operation

When the receiver is powered it will enter a 'search' mode. The middle horizontal bars of the display flash at intervals of approximately one second. Upon receiving a signal from a single transmitter for five minutes, it will 'mate' with that device, the display will show the transmitter four digit identity for five seconds and then display the temperature received. Change of temperature increments in half-degree steps. The receiver remains 'mated' to the transmitter until it no longer receives its transmission for more than two minutes, at which point it will enter 'search' mode once more.

The receiver is factory pre-programmed with 'acceptable temperature' parameters within the range –25°C to +55°C. SecureTemp can therefore be used with both cold and warm produce. Received temperature data outside the programmed parameters (typically 0°C - +5°C) will activate the alert function. This will sound a 'bleep' for 15 seconds and cause the display to flash on and off until the temperature returns within limits, when the unit will resume a steady display; or until the receiver is turned off.

When a different trailer is coupled to the truck, the receiver will, at 'switch on', initially display the previously 'mated' identity then, having heard no signal from the transmitter for more than two minutes, will enter 'search' mode. Upon receiving signal from a new transmitter it will, after five minutes, 'mate' with that transmitter and display the new four digit identity followed by the new trailer temperature. This matching process will give a maximum handover time of around seven minutes when swapping trailers.

oem group limited
6 Kinetic Crescent, Innova Science Park, Enfield, EN3 7FJ, United Kingdom. Tel: +44 (0)20 8344 8777 Fax: +44 (0)20 8344 8778
Email: sales@secureseal.com Website: www.secureseal.com