LocaSafe UT-221 Safety Tag
INSTALLATION AND OPERATING MANUAL V1.0

Locatechs B.V.

1 Introduction

The LocaSafe UT-221 Safety Tag is a part of the LocaSafe proximity warning system. It is designed to improve workplace safety by reducing the risk of human-vehicle and vehicle-vehicle collisions.

The safety tag is to be worn by personnel. It interacts with the LocaSafe base station via Ultra-Wideband (UWB) radio wave to measure the user's distance from vehicles, with an accuracy of ±20cm. When this distance reduces to a pre-set, unsafe distance, it will warn the wearer via a visual/sound/vibration warning/alarm that there is imminent danger of a collision.

The safety tag also provides information about time/date and step count with its 33mm (1.3-inch) display, thus replacing the functionality of a normal watch and providing additional features.

2 System Description

2.1 Product Summary

Figure 1 LocaSafe Components

① 1.3-inch LCD display ② Operation indicator

③ Button 1 ④ Button 2 ⑤ Magnetic contact charge port

NOTE: All numbers in circles in the instructions below refer to the LocaSafe Components identified in Figure 1

Figure 2 Display

① Battery icon   ② Date and Time   ③ Step count

2.2   Features

- Up to 30m and 360° collision risk detection range
- 48-hour active time, one-month standby time
- Visual/Sound/Vibration warning/alarm
- Time/Date display
- Step count
- IP65

2.3   Standard Accessories

- USB 4-pin magnetic charging cable

2.4 System Specification

Item	Description
Outline	
Product name	UT-221
Usable Detection Range	30m
Tracking Accuracy	±20 cm
Tacking Capacity	Five LocaSafe base stations per measurement Three measurements per second
Proximity Alarm	Visual (through LCD display) Vibration Buzzer
UWB	
Protocols	802.15.4a
Working Frequency	6.5 GHz (Channel 5)
Physical Rate	6.8 Mbps
Output Power (25°C)	-41.3 dBm/MHz
Channel Frequency Width	500 MHz
Display	
Screen Size	33mm (1.3 inch (240*240 dot))
Display content	Time/Date Step count Battery capacity
Battery	
Battery capacity	730mAh Lithium poly battery
Battery Life	Active: 48 hours Standby: > 1 month
Battery Charge Time	Approx. 2 hours
Battery Charge Voltage	5V DC
Battery Charge Interface	4-Pin magnetic contact
Physical Information	
IP Rating	IP65
Operation Temperature	Working: -10°C ~ 60°C Storage: -20°C ~ 70°C
Humidity	5 – 95% (no condensation)
Dimensions	57x45x23 mm (excluding the strap)
Weight	65 g

3 Usage:

3.1 Activation

The LocaSafe safety tag is shipped in its 'deep sleep' mode for delivery to customers. The safety tag must be activated before it can be used for the first time. To activate the LocaSafe safety tag, press Button 1 (③) once to activate the tag. The Operation indicator (②) will flash three times if the activation has been successful. The LCD display (①) will then turn on and the operation indicator (②) will flash in blue, indicating that the tag has been activated.

3.2 Alarm

The LocaSafe safety tag is capable of providing different visual, audible and vibrational alarms for up to three different proximity zones. The range of each zone and their corresponding alarms can be configured in the LocaSafe base station using the LocaSafe Configuration App. **Error! Reference source not found.**Figure 3 **Error! Reference source not found.**illustrates the two visual warnings that can be displayed.

Figure 3 Visual alarms

The default warning/alarm signal settings for each safety zone are listed below:

Warning/Alarm level	Visual Warning	Vibration Warning	Audible Warning
Critical level	Flashing red symbol	Constant vibration to provide warning (can be stopped by pressing any of the buttons)	Buzzer beeps five times to provide warning
Warning level	Constant red symbol	Vibrates three times to provide warning	Buzzer beeps five times to provide warning
Pay attention level	Constant yellow symbol	Vibrates three times to provide warning	Buzzer beeps five times to provide warning
Safe Zone	No alarm		

3.3 Power saving

- Automatic display turn off
  If there is no further visual alarm to be displayed, the LCD display (①) will automatically turn off after 30 seconds. The display will turn on immediately when a new visual alarm needs to be given or any of the buttons have been pressed.

- Sleep mode
  The safety tag goes into sleep mode if it has remained static for more than one minute. In this mode, the tag will stop all its activities and turn off the LCD display (①). It will not be detected by any LocaSafe base station and will not trigger any alarm. The safety tag will instantly wake up when it is moved and will recommence its normal functionality.
  The internal battery can power the safety tag in 'sleep mode' for more than one month.

3.4 Power indication

The remaining battery capacity and the battery charging state are indicated by the battery icon in the LCD display (①). Additionally, the operation indicator (②) uses different colors to indicate the battery status. The indicator flashes with a blue light when the remaining battery capacity is above 20%. This changes to a red light if the battery capacity falls below 20%.

3.5 Recharge:

Connect the 5V USB magnetic contact charger to the LocaSafe safety tag to recharge the tag's lithium battery.

The operation indicator (②) will display a solid orange light when the safety tag is recharging. The safety tag's functionality automatically stops when it is being recharged. While recharging, LocaSafe base stations will not trigger any alarm.

The operation indicator (④) will turn green when the safety tag's battery is fully charged.

The LocaSafe safety tag uses a li-po battery which has no memory. This means that battery performance does not diminish when partial charging frequently occurs.

4 Set Time and Date

The Time/Date that are displayed on the LCD screen correspond with the UTC+1 Time Zone. They will need to be adjusted if the safety tag is used in a different UTC zone. When the battery is completely empty, the time / date will be reset to January 1, 2000, 00:00:00. You will need to manually reset the Time/ Date accordingly.

To change the time on the LocaSafe safety tag:

1. When adjusting the LocaSafe safety tag's settings, ensure you are in a safe location away from any moving vehicles and also out of range of any LocaSafe base station. If an alarm is triggered by a nearby LocaSafe base station while adjusting the time, the tag will exit the time setting mode and any changes will not be saved. Also make sure the battery has been sufficiently charged before implementing any changes to the settings.

2. Press and hold Button 2 (④) to enter the time setting mode. The field that is selected will be highlighted. The hour field will be selected when initially entering the time setting mode.
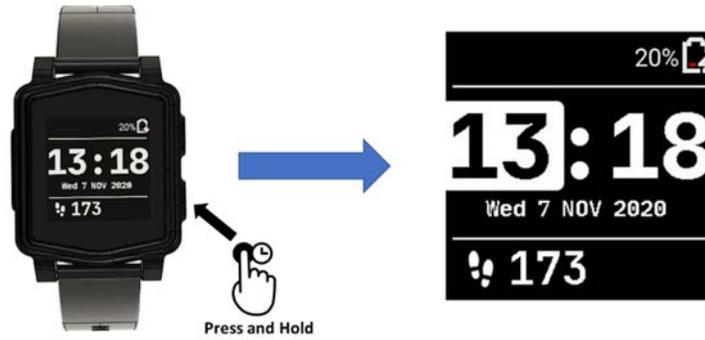

Figure 4 Press and hold Button 2 to enter the time setting mode.

3. Click Button 1 (③) to increase the value of the selected field and click Button 2 (④) to decrease the value.
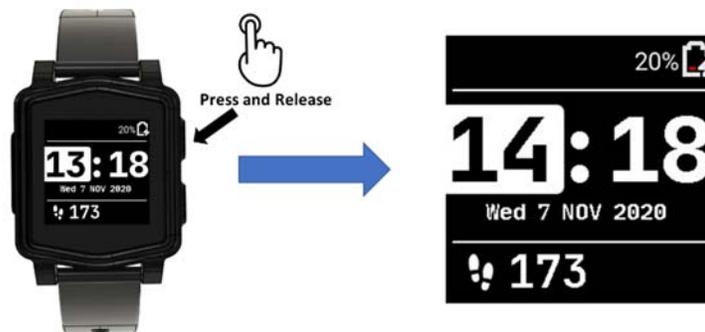

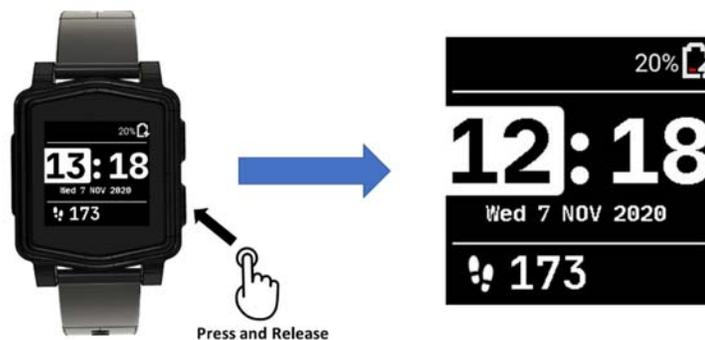*Figure 5 Press and release Button 1 to increase the value of the selected field.*

Figure 6 Press and release Button 2 to decrease the value of the selected field.

4. Press and hold button 1 (③) to rotate between different fields to edit.

Figure 7 Press and hold Button 1 to rotated between the fields to edit.

5. Press and hold button 2 (④) to save changes and exit the time-setting mode.
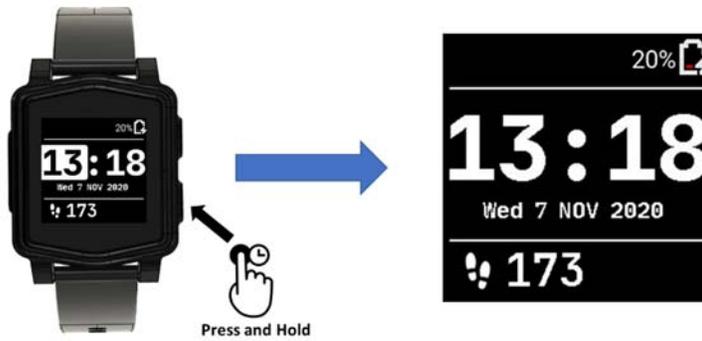

Figure 8 Press and hold Button 2 to save changes and exit the time-setting mode.

5 Statement

The LocaSafe system (the Product) constitutes a safety aid instrument to reduce the risk of human-vehicle and human-driven vehicle-vehicle collisions in the working environment. It does not constitute a personal safety system as it does not interact in any way with any vehicles being operated (for example, applying the brakes, etc.)

Inherently, the LocaSafe system's effectiveness is subordinate to the operator's actions whenever and wherever. The purchase and use of the LocaSafe safety tag do not exonerate the Buyer/User from adopting/implementing any existing health & safety procedures and or regulations appropriate to the location and nature of the work being carried out. The LocaSafe should be used as an additional (and optional) safety measure aimed at reducing the risk of (costly and time-consuming) accidents in the workplace, not as a substitute for any existing health & safety measures being implemented.

Furthermore, the LocaSafe system works using radio frequency transmissions and, as such, no guarantee can be given that transmission of signals between a LocaSafe and LocaSafe dock, and vice-versa, will remain 100% constant owing to the potential for external interference with the signal, including magnetic interference, signal obstruction, loss of power, etc.

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