Smart Badge (SMC-T3) User Manual

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CertifiedSafety

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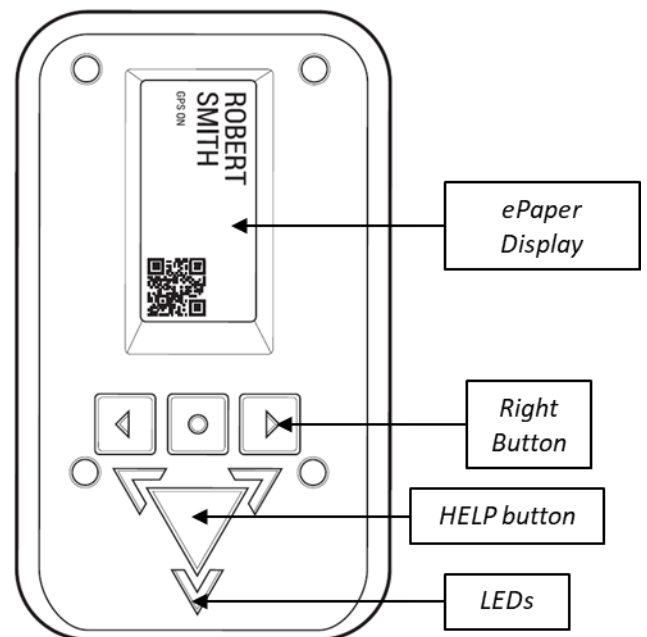
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User Overview

The SMARTCONNECT SMART BADGE GEN 2 (SMC-T3) was developed by CertifiedSafety to provide personnel trained to work in industrial environments and in specific worksite duties with an added tool to keep them safe and engaged. The badge has been incorporated into the SmartConnect connected worker platform. The Device's features are designed to ensure meaningful and clear user interaction. Read this manual before using the Device and ensure appropriate training by supervisors or SmartConnect personnel to understand operation as well as any limitations and disclosures associated with the Device.
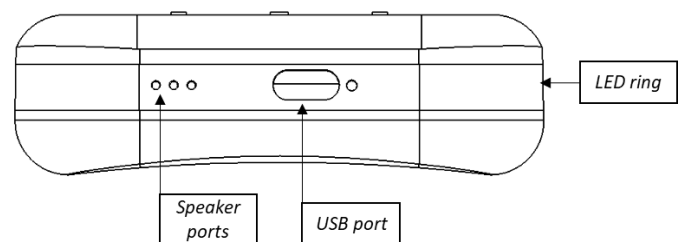
Badge Overview

The badge consists of the following primary features:

- 3 RGB LEDs on the front and a LED ring around the sides for easy viewing of alerts.
- A HELP button, which should be used only in emergencies and when aid is needed.
- An ePaper display, which is an "always-on" display that does not need power to display its messages.
- A speaker to emit audible alerts, as well as a vibration motor to ensure alerts are also felt by the user.
- Left ($\leq$), right ($\geq$), and middle (o) navigation buttons. (Buttons are oriented as shown.)
- A USB charging port which can be connected to USB charger. The Device can also charge through its screws by stacking Devices on top of each other such that the four screws touch. When the Device is on, the LED ring will be red when charging and green when completed. The screen has a state of charge (SOC) value that will go from 0-100.

The badge is GPS enabled and will state on the ePaper screen when GPS is not available, which is common indoors or in very shaded locations (see privacy information below for more information). It also uses a technology called LoRa-HF (2.4GHz) to triangulate its location from nearby beacons (where installed).

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The badge will send its location information to the cloud on a rate dependent on number of tags onsite, payload size, priority and other configurable items via a LoRa (902-928MHz) gateway configured on the site where the badge is meant to be worn. The Device will only receive or transmit an alert when it is connected to a LoRa gateway. If the Device is outside the range of the gateway (as shown by a radio signal with an RSSI value next to it), it cannot receive or transmit information.

When connected, the Device will flash green. When not connected, it will flash red. If the Device is not flashing, it is not on (even if the ePaper display is on). If the Device is not on and connected, alerts (such as the HELP button) will not be received or transmitted.

For more detailed information about the technology, refer to the Device datasheet.

The badge is meant to be worn on an armband or in a vest pocket with the display facing outwards. It may also be placed on a piece of equipment and attached to the equipment using industrial grade straps, 3M two-sided tape, or other attachment mechanisms appropriate for the application (keeping in mind the Device vibrates). The vest separation from skin will need to be greater than 9mm. However worn, the User must ensure the vibration alert is easily recognized.

Manufacturer and Datasheet Information

Manufacturer	CertifiedSafety, Inc.
Enclosure – Dimensions	126 mm H x 75mm W x 22mm D (4.97" H x 2.97" W x .89" D)
Weight	192.1g (6.8 oz)
Power – Rate of Draw	Up to 350mA
Power – Battery Type	2 x Li-Ion 3000mAh
Power – Charge Input Power	5V USB micro Devices may be stacked on a Device that is plugged in. No more than 4 Devices may be stacked at a time.
Power – Time to Full Charge and Battery Life	10 hours 1-4+ days of battery life depending on use
Hardware / Firmware – Onboard Sensors	Bluetooth Low Energy (for beaconing) Accelerometer, Altimeter, LoRa (900MHz), LoRa (2.4GHz), GPS

Hardware / Firmware – Connectors	Micro USB
Hardware / Firmware – Lights, Audio, Screen, Buttons	7 RGB LEDs, 4 user input buttons, speaker, vibramotor, 2" ePaper display
Environmental – Operating Temperature	-20°C to +50°C
Environmental – Storage Temperature	-20°C to +50°C
Certifications	IP67
	FCC Part 15 Subpart C 15.247
	UL 62368-1

User Mode

User Mode is the most common mode for operating the Device.

In this mode, the ePaper display will show the main operating screen, which will depict:

- The name of the asset that the badge is checked into. When the Device is checked into a person, that person's name should show on the Device.
- The current GPS location (or "No GPS" if GPS is not available).
- The MACID (i.e. the identifying information) of the Device in the SmartConnect application.
- The State of Charge (SOC).
- A QR code with the MACID embedded within it which may be used to check in the Device by a SmartConnect technician.
- The current firmware number.
- The Received Signal Strength Indicator (RSSI) of the gateway to badge connection.

The RSSI is a measure of signal strength with a range from 0 to -130. Numbers closer to zero indicate a stronger signal, with zero being the strongest.

Alerts can be configured to notify the user when battery levels go below certain thresholds, which will be case-by-case dependent. The battery level is also sent to the cloud for monitoring,

Alert / HELP Mode

When an alert is sent to the Device (from the cloud) or when the HELP button is pressed, the Device will beep, vibrate, flash its LEDs and display a message on the ePaper display. To clear an alert, or to cancel HELP mode, press the middle (o) button for 4 seconds. If you cancel an alert, the Device will stop vibrating, beeping and

flashing and the message will go away. The alert will still be logged in the cloud based application, but will not remain in active alert.

Become familiar with the sounds, lights, vibrations and ePaper display modes so they do not surprise if you receive an alert during training for the site-specific customization. If you did not receive the training, ask a SmartConnect trained technician. Various types of alerts may include vibration for different lengths of time, different tones, different messages and/or different LED colors and length of illumination.

Button Operation

Function	Right Button (>)	Middle Button (o)	Left Button (<)	HELP Button (!)	Time to Activate (seconds)
Power On			X		4
Power Off			X		4
Hard Reset			X		10
HELP / Man Down				X	Instant
HELP / Man Down Cancel *(if you did not intend to hit the HELP button)*		X			4
Alert Cancel		X			4

LoRa HF and Other 2.4GHz Networks

LoRa HF does not interfere with, or receive interference from, other 2.4 GHz networks, such as Wi-Fi, Bluetooth, or Bluetooth Low Energy (BLE). The Device can operate in areas where such signals are present without difficulty.

Warnings, Precautions and Disclosures

Users, supervisors, site managers, owners and their affiliates should understand that changes or modifications not expressly approved by CertifiedSafety and any other party responsible for compliance, regulatory and/or operational requirements could void the unit warranty, the user's authority to operate the equipment, or both.

__WARNING__[1]: The Device is not meant to be used as a life-saving or death-defying Device. It is meant to be an augmentation tool to support other processes and is provided "as-is" by CertifiedSafety. The Device does not replace or substitute other employer, OSHA or any other approved personnel protection equipment (PPE). While the system has the capability to support man-down or restricted entry awareness, it should not be relied upon in any way. The Device is not a substitute for common sense, your other senses, or good worksite and safety practices. The Device's GPS tracking is not pin-point accurate and the refresh rate is periodic, which may lead to

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[1] According to ANSI Z535.4:

Danger: Indicates a hazardous situation that, if not avoided, will result in death or serious injury. The signal word "DANGER" is to be limited to the most extreme situations.

Warning: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

Caution: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Notice: Indicates information considered important but not hazard related.

inaccuracies in location. It will not automatically notify you of physical boundaries or hazards. For example, it will not tell you when you are approaching the edge of a roof, the top of stairs, moving equipment or any others.

<u>WARNING</u>: Users who wear pacemakers or have other health conditions which might be sensitive to the electrical signals used by the Device should consult their physician before wearing the Device.

<u>NOTICE</u>: Users are to be trained on various common and standard alerts for specific jobs and locations. If you have not received such training, notify your supervisor.

<u>WARNING</u>: Users must become sufficient familiar with the various alerts from the Device so that they are not startled when an alert is received. Remove the Device before engaging in any activity for which an alert beep, flash or vibration could create a risk of injury to User or others.

<u>CAUTION</u>: Do not place the Device over broken or damaged skin.

<u>NOTICE</u>: Keep the Device away from other Devices that may cause electromagnetic interference of any nature.

<u>WARNING</u>: If your SmartConnect Device is damaged or cracked, DO NOT use, as this could create an electrical safety hazard, malfunction, or a risk of electrical shock.

<u>CAUTION</u>: Do not secure armband or Device in a way that restricts blood flow, movement or line of sight necessary for operational duties or proper safety measures.

<u>CAUTION</u>: Do not overload charger. Ensure total number of Tags does not exceed current capacity of charging source.

<u>NOTICE</u>: Use only approved marking system per UL certificate MH16736.

Care and Maintenance

1. Examine the SmartConnect Device before each use for unusual wear and tear. Do not use a SmartConnect Device that is damaged or does not identify the appropriate user or specific equipment in the ePaper display.
2. Do not exchange SmartConnect Devices with another user.
3. Keep the Device clean, free of visible dirt and protected when not in use. Wipe the outside with a cloth between uses to keep clean.

<u>NOTICE</u>: Device should not be left to overheat in a closed vehicle or equipment exposed to direct sunlight.

CertifiedSafety. This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This Device may not cause harmful interference; and (2) this Device must accept any interference received, including interference that may cause undesired operation. This Device gives off RF energy. RF

energy in general may interfere with other third-party Devices on the same frequencies of operation such as cell phones, Bluetooth

wireless headsets, wireless routers, microwave ovens, and laptops with internal Wi-Fi adapters. The user of the

Device can help prevent electromagnetic interference by maintaining a minimum distance between other

portable/mobile RF communications equipment (transmitters) and the Device of at least 30 cm (about 12 inches).

A separation distance of 9 mm must be maintained between the antennae and operator during operation. This can be achieved with the vest or arm band provided with the Device.

Use of the SmartConnect Device is subject to the terms and conditions of the most recent SmartConnect end user license agreement and privacy policy. These documents are updated from time to time and are posted at www.getsmartconnect.com. Other site-specific privacy documentation may be provided when the Device is received and must be adhered to.

NOTICE: The screen may fade or have other issues in intense, direct sunlight. If this occurs, take the Device inside.

NOTICE: This Device is not meant to be opened. Do not use if opened, cracked or damaged. Although the Device is IP67 rated, Device performance may be affected by excess water condensation, high gas concentration environments or excessive vibration, jolting, dropping or concussion.

Battery Safety

Mishandling of the Device or battery may result in burn hazard, fire hazard or danger of explosion. Do not crush, disassemble, open, dispose of in fire, heat above 50C or similar actions. If the Device gets too hot, take it inside, turn it off and wait for it to cool down. If the Device gets too hot when plugged in, remove it from the charger and provide it to CertifiedSafety. Only recharge battery using UL listed equipment. Replacement batteries are not recommended without manufacturer's approval.   DO NOT use the power supply if it is damaged in any way. Never charge the battery while wearing the Device. If storing the Device for a prolonged period, turn off the Device to ensure the batteries are not damaged. Only charge Device with provided or another UL approved charger. Never put batteries in mouth. If swallowed, contact your physician or local poison control center. Dispose with in accordance with local regulations. Do not dispose of Device or the battery with regular household, office or worksite waste.

SmartConnect Device Limited Warranty

1. Coverage and duration of limited warranty. CertifiedSafety, Incorporated ("CertifiedSafety") warrants to the user ("you") of the SmartConnect Device (the "Device") that the Device shall be free from defects in material and workmanship under normal use for a period of ninety (90) days commencing on the date The Device is first supplied by CertifiedSafety to its customer ("Warranty Period"). This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction. This limited warranty is made on the condition that you provide CertifiedSafety with written notice of any defects in material and/or workmanship immediately upon discovery, and provided that CertifiedSafety determines that your claim is due to defects in original material and/or workmanship. If CertifiedSafety provides a replacement Device pursuant to the terms of this limited warranty, any remaining warranty on the original Device will transfer to the replacement Device. If a repaired or replaced Device is supplied within thirty (30) days of the end of the Warranty Period, then the Warranty Period will be extended by thirty (30) days.

2. Exclusions to the limited warranty. The limited warranty applies only to the Device manufactured by CertifiedSafety, and is conditional upon proper use of the product by you. The limited warranty does not cover a) cosmetic damage, scratching or other damage to surfaces and exposed parts due to normal use; b) damage resulting from accident, neglect and other negligence, misuse, unusual physical, electrical or electromechanical stress, or modification of any part of the product; c) equipment that has been altered to remove, alter or otherwise make illegible the ID number; d) malfunctions resulting from use with products, accessories or peripheral equipment not furnished by or approved in writing by CertifiedSafety; e) equipment that has been dissembled; or f) damage caused by improper operation, testing, or maintenance. This limited warranty does not apply to collateral services, equipment or software that may be used with the Device.

 3. CertifiedSafety's obligations under the limited warranty. Your sole and exclusive remedy, and the sole and exclusive obligation of CertifiedSafety under this limited warranty, is to repair or replace, at its sole discretion, without charge, any defective Device, provided that the defect arises and a valid claim is received by CertifiedSafety within the Limited Warranty Period.

4. Limits of CertifiedSafety's obligations under the limited warranty. THE LIMITED WARRANTY OF CERTIFIED SAFETY DESCRIBED ABOVE IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, AND CERTIFIED SAFETY EXPRESSLY EXCLUDES AND DISCLAIMS ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, SATISFACTORY QUALITY, NON-INTERFERENCE, ACCURACY OF INFORMATIONAL CONTENT, OR ARISING FROM A COURSE OF DEALING, LAW, USAGE, OR TRADE PRACTICE. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, CERTIFIED SAFETY SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, ARISING IN ANY WAY

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