COMPASS® SERIES

USER GUIDE

AN INSTANT RESPONSE WHEN EVERY SECOND COUNTS

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Introduction

Field workers face the daily risk of severe or fatal injury as they perform their jobs. Injured field workers can go without aid for hours, with the chances of fatality increasing exponentially as every minute passes.

COMPASS series devices are connected total emergency response solutions with advanced built-in voltage and current detection. When paired with the Safeguard Navigator Mobile App and Navigator Console, information about an injured worker's condition and location is made available to your organization's emergency responders, reducing response times and communication errors.

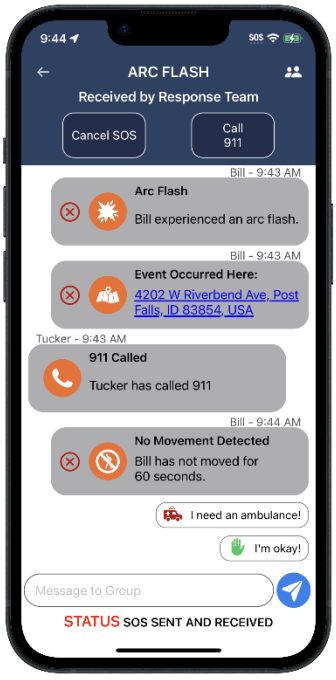
Internal sensors in COMPASS series automatically detect emergency events such as falls, impacts, and arc flashes. COMPASS series also has SOS capability and can detect and add no-movement information to emergency events.

COMPASS series advanced voltage and current detection capabilities help prevent serious injury for anyone working in or around live alternating current (AC). Alerts are generated based on configurable alert sensitivities that warn users of energized electrical sources and directs users to the source's location.

Primary Functions

- Identify emergencies
  - Arc flash detection
  - Impact detection
  - Fall detection
  - No movement detection
  - SOS button
- Identify live conductors
  - Voltage detection with directional alerts
  - Current detection
  - Visual & audible alerts
- Facilitate fast emergency response
  - Emergency location sharing
  - Team emergency communication via SMS and in-app messaging
- Share emergency information for improved response
  - Event logs

*COMPASS Core
*COMPASS Pro



*COMPASS Pro IS (for use in hazardous locations)

Specifications

Model	Compass Core	Compass Pro	Compass Pro IS
Size	3.0” (77mm) X 1.4” (35mm) x .9” (23mm)		
Weight	0.95 oz (27g)		1.02 oz (29g)
Enclosure	Rated IP-67 Flame Retardant: UL recognition 94 V-0 at 1.5 mm Electric Strength (IEC 60243-1): 34kV/mm Electric Volume Resistivity (IEC 60093): 1.0E+14 ohms-m		
Power System	Rechargeable Lithium-Polymer (LiPo) Battery (3.7V, 250mAh). Full charge can last 6 days (48+ hours). Battery life varies depending on the number of alerts.		Rechargeable Lithium-ion Battery (3.7V, 85mAh). Full charge can last 2 days (16+ hours). Battery life varies depending on the number of alerts.
Operating Conditions	Operation: -20°C to 60°C (-4°F to 140°F)		Operation: -20°C to 50°C (-4°F to 122°F)
Charging	Typically charges to 100% in 1.5 hrs. USB minimum 5V, 0.5A		
Charging Conditions	Charging: 0°C to 45°C (32°F to 113°F)		
Detection Frequency	50 Hz and 60 Hz options available		
Voltage Detection Ranges	Medium: 2.4kVAC 34.5kVAC	Low: 120VAC - 2.4kVAC Medium: 2.4kVAC 34.5kVAC High: 34kVAC - 500kVAC ***Selectable via the safeguard equipment app***	
Voltage Detection Sensitivity	Two sensitivity levels (6 & 11) ***Selectable via the safeguard equipment app***	Eleven sensitivity levels + Smart Adaptive mode + Alert Disable	Eleven sensitivity levels + Smart Adaptive mode + Alert Disable *Note: Compass Pro IS does not have Low Range settings 8, 9, 10, and 11.*
Voltage Detection Directional Accuracy	Point source: Approximately ±20°		
Current Detection	One sensitivity level (11)	Eleven sensitivity levels + Smart Adaptive mode + Alert Disable	
Impact Detection	Impacts above 190g		
Fall Detection	Falls greater than 6ft (1.8m)		
Arc Flash Detection	Minimum of 4 Cal/cm2 with +/- 45 degrees viewing angle.		
EMC	FCC Part 15B Class B: ICES-003 Issue 7 FCC Part 15C: IC RSS-GEN Directive 2014/53/EU (Radio Equipment Directive (RED)), EN 300 328 V2.2.2, EN 301 489-1 V2.2.3, EN 301 489-17 V3.2.6		
Safety	ANSI/ISEA Z89.1-2014 - Class E Hard Hat, Full Brim, Type 1; Tested Accessory		ANSI/ISEA Z89.1-2014 - Class E Hard Hat, Full Brim, Type 1; Tested Accessory UL 60079-0, 60079-11 & 61010-1 CSA C22.2#60079-0, 60079-11 & 61010-1-12 IEC 60079-0, 60079-11 ***See “Compass Pro IS Annex” for additional details.***
Environmental	Directive 2011/65/EU (RoHS 2), Directive 2015/863/EU (RoHS 2 amendment), EN IEC 63000:2018, Directive 2006/66/EC (Battery RoHS) REACH (EC) No 1907/2006: No SVHC above 0.1% by weight evaluated to SVHC candidate list January 23, 2024 (240 substances). California Proposition 65: ⚠ This product can expose you to chemicals such as Acrylonitrile, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov		
Conformances (To Other Standards)	ASTM F3283/F3283M - 18: Standard Specification for the Manufacturing of High Voltage Proximity Alarm to be used for the Detection of Overhead High Voltage Alternating Current (AC)		

Getting Started

Before using COMPASS series ensure the device is fully charged. Open the USB cover and connect the cable provided. When connected the device will show a charging status indicator. If it does not, please wait for it to charge.

Solid Red LED: Charging

Green LED: Fully Charged

The device can be turned on and off by holding the MAIN button. On power up, the battery status is displayed by a sweeping green LED display. Examples are shown below.

Battery 50% Charged

Battery 90% Charged

Operation

COMPASS series devices can be used without the Navigator Mobile, but with limited features. Using the device with the Navigator Mobile is easy and intuitive. For details see “Navigator Mobile User Guide”. The Navigator Mobile Apps are free for download from the Apple App Store (iOS) and Google Play Store (Android).

Changing Sensitivity (without App)

1. Press and hold the MAIN button until the corner lights turn RED for voltage or BLUE for current. Release the button at the desired color to enter the associated menu.

Voltage Settings Menu

Current Settings Menu

2. The sensitivity level is indicated by how many BLUE/RED lights fill the light bar. Click the MAIN button quickly to cycle through the sensitivities.
3. Settings: 0-11 LEDs. 0 means the alert will be disabled, 1 is the lowest sensitivity, and 11 is the highest.

Voltage Sensitivity Setting: 8

Current Sensitivity Setting: 3

4. Smart Adaptive Mode is designated by the lights filling and fading from the center out.
5. When finished press and hold the button for 1 second to save the sensitivity.

Note: The voltage range setting can only be changed within Navigator Mobile.

Mute/Unmute (without App)

COMPASS series can be muted/unmuted with a quick press of the MAIN button.
When muting, COMPASS series will beep twice. When unmuting, it will issue 3 quick increasing alerts to indicate that audible alerts are back on.

When COMPASS series is muted and, in a voltage, or current field above the alert threshold, the user will get periodic fading corner lights (no audible alert) of the appropriate color: RED for voltage, BLUE for current.

Heartbeat

The COMPASS series device has a heartbeat that flashes every 2 seconds.
The heartbeat location indicates the selected voltage range Low (L), Medium (M), or High (H).

Voltage Range Low (L)

Voltage Range Medium (M)

Voltage Range High (H)

The color of the heartbeat indicates the status of COMPASS series.

A green heartbeat indicates that the device is connected via Bluetooth and the user's phone is connected to a network (Wi-Fi or cellular data).
A WHITE heartbeat indicates that one of these network/connectivity conditions is not met.

Green = full connectivity

White = no or partial connectivity

Voltage & Current Alerts

When approaching a voltage or current source COMPASS series will issue audible alerts along with LED visual alerts (RED for voltage, BLUE for current). As the user approaches, the urgency and frequency of the alerts will increase as per the selected sensitivity setting. See the detection distances section for more information.

Red = Voltage Alerts

Blue = Current Alerts

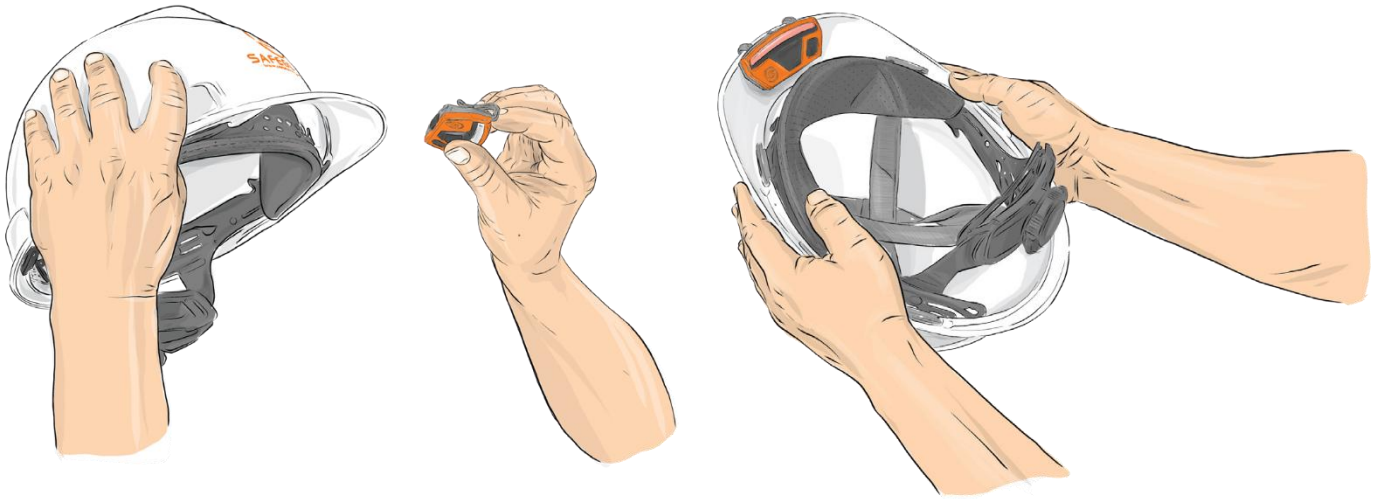
Directional Voltage Alerts

If COMPASS series detects a voltage source originating off to the side of the device, it will generate a directional alert to indicate the direction to the voltage source. This is shown with sweeping RED LEDs.

The directional alerts will stop when the user is facing the source, and indicate this by RED LED flashes at each end of the light bar.

Device Mounting

Hard Hat



COMPASS series is designed to be worn on the brim of a hard hat, directly in front of the user's face. Ensure the unit is within the user's peripheral vision to maximize effectiveness.

For hardhats that do not have a traditional brim we offer the following adapters.

KIT, Accessory, Non-Brimmed Helmet Adapter
(Petzl Strato, 3M SecureFit X5000)

KIT, Accessory, Petzl Vertex Helmet Adapter

KIT, Accessory, IDRA 2 Helmet Adapter

KIT, Accessory, Adhesive Helmet Adapter

KIT, Accessory, SECRA-1 Red Helmet Adapter

KIT, Accessory, SECRA-1 Black Helmet Adapter

Handheld

For low voltage sources and for tracing wires in walls (current), COMPASS series can operate as a handheld device using the Collapsible Handheld Adapter. For the best results, set the sensitivity to high.

When using COMPASS series in handheld mode, do not obstruct the front of the device, as this can significantly reduce its detection capabilities.

WARNING: Emergency event features are designed and tested to work in the hard-hat mounted position. These features may not work as expected when using the device in handheld mode.

In addition to handheld use, COMPASS series can function on a wrist strap.

KIT, Accessory, Collapsible Handheld

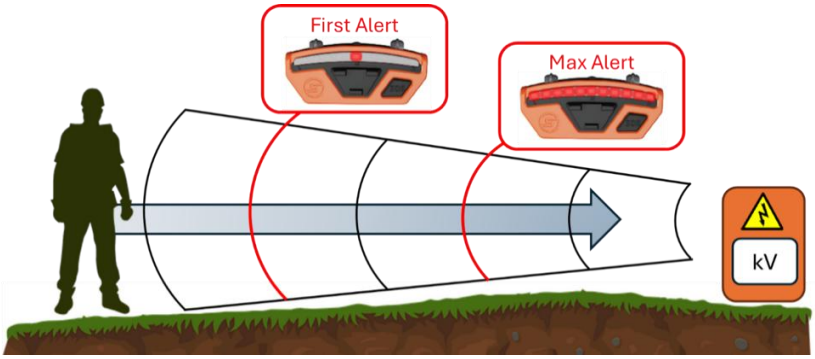
KIT, Accessory, Wrist Mount/Strap/Card

KIT, Accessory, Hot Stick Adapter

Voltage Detection Distances

Hard Hat

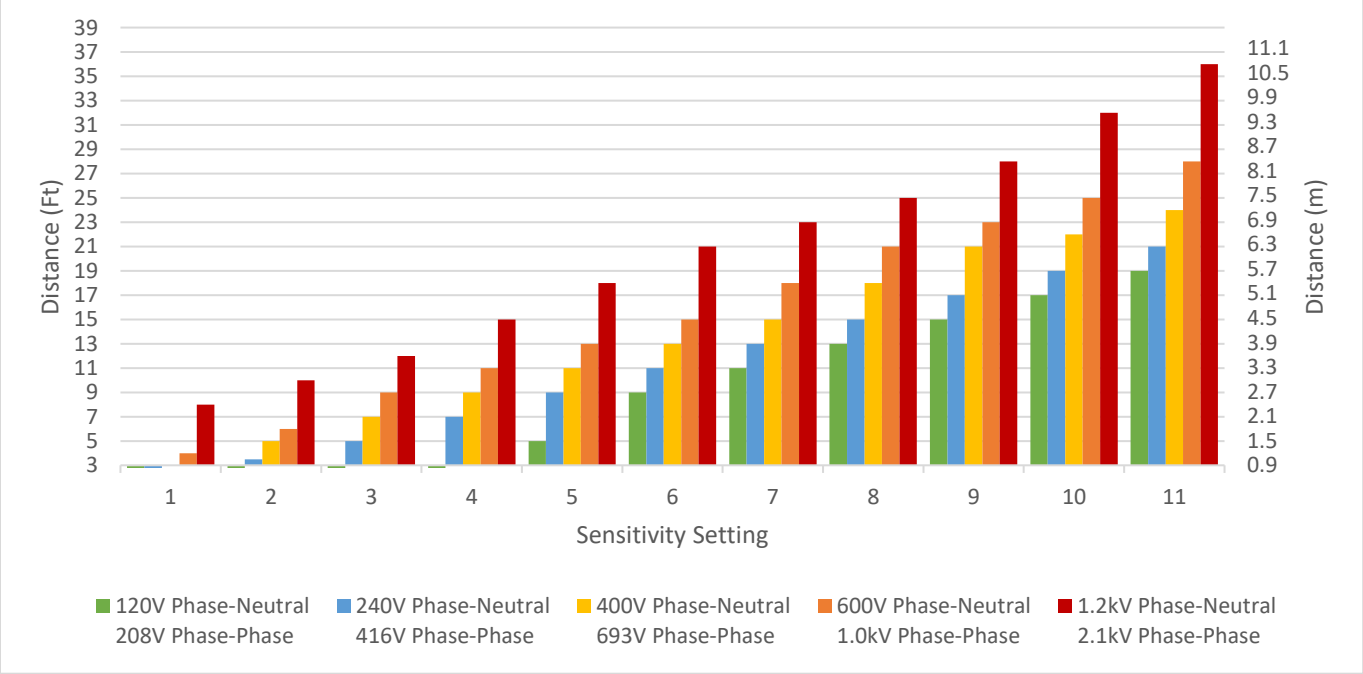
Distances are measured using a 4ft x 2in diameter busbar elevated 2.5 feet above ground, in an outdoor setting (26°C and 35% RH) by a tester walking with a COMPASS series device mounted on a hard hat as shown below.



Max Alert can be expected at roughly 60% the distance of the First Alert. Example: A First Alert at 10ft (3.0m) will generate a Max Alert at 6ft (1.8m).

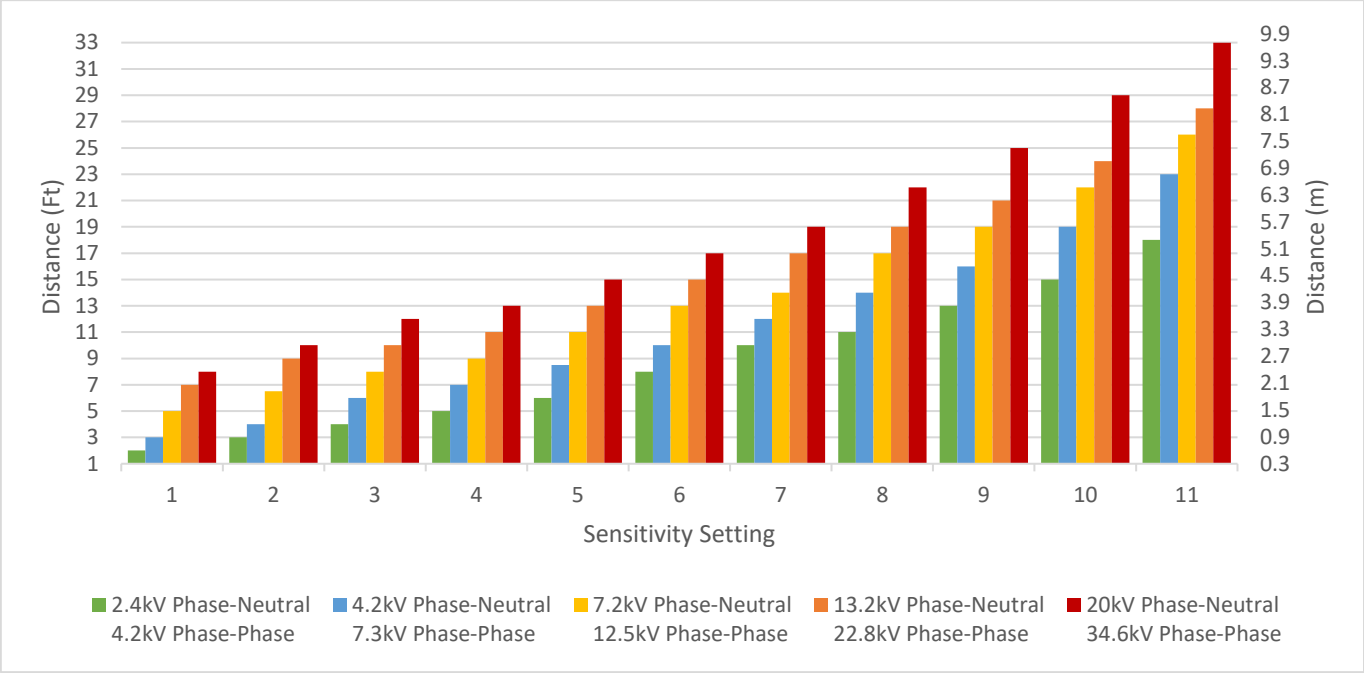
In the plots below if a setting does not have an entry for a given voltage, no alert was experienced during testing and that setting is not recommended for use around that voltage.

Low Voltage Range, First Alert Distances



Note: Compass Pro IS does not have Low Voltage Range settings 8, 9, 10, and 11.
Note: Compass Core does not have the Low Voltage Range.

Medium Voltage Range, First Alert Distances



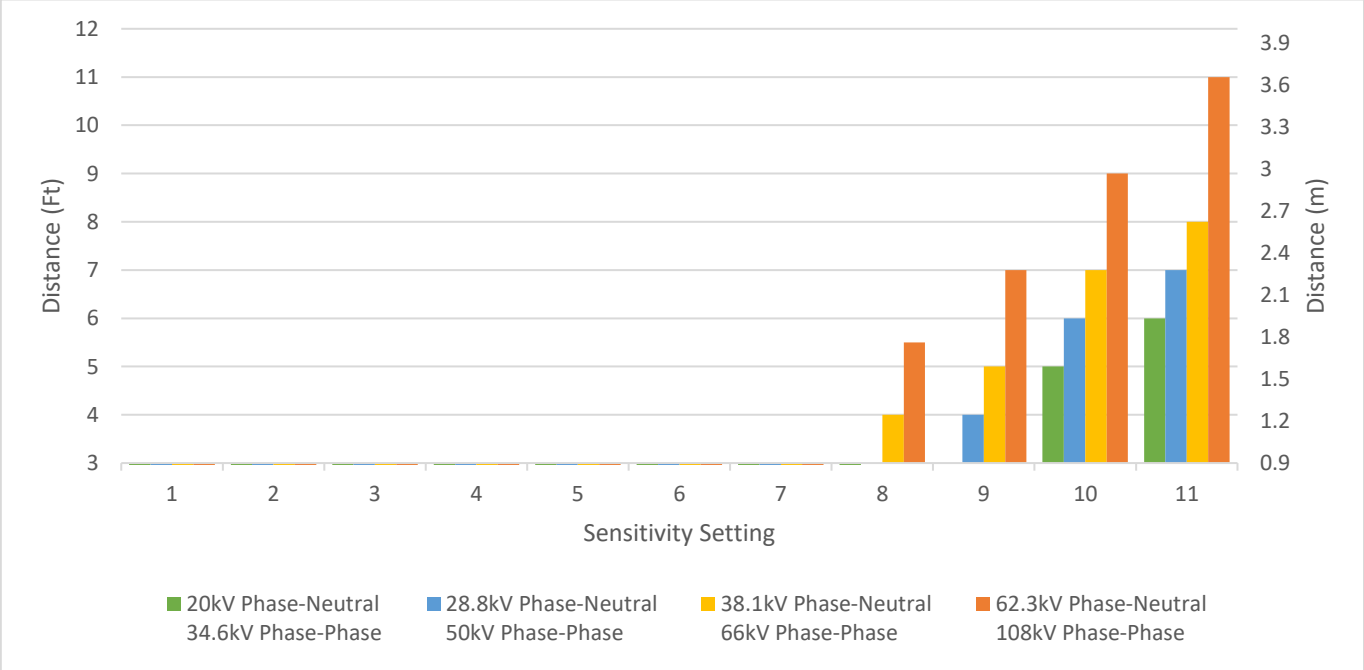
Note: Compass Core has access to settings 6 & 11 only.

High Voltage Range

The high voltage range has two different behaviors depending on the generation of device. For information about determining the build date of your device or identification of the device via the App please see the "Serial Number & Identification" section.

High Voltage Range: First Generation

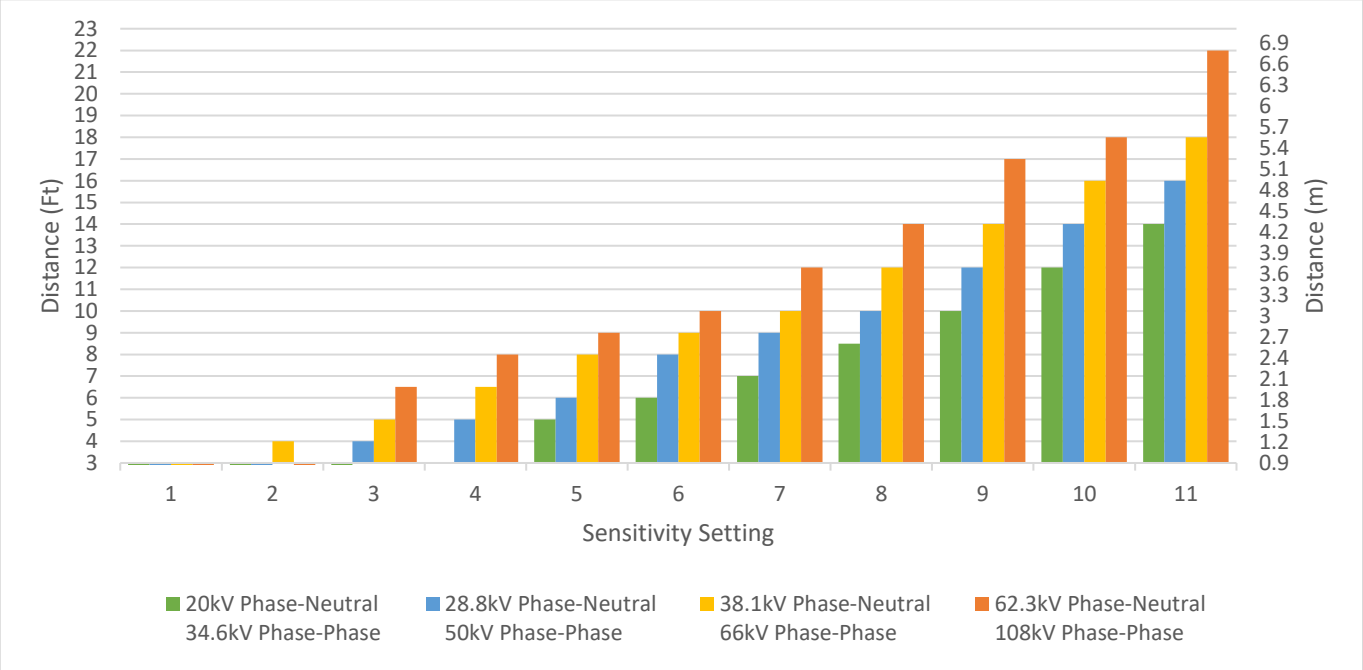
Compass Pro 60hz (M03006): Built before the 28th week of 2025, Identified in the App as V4 and prior.
Compass Pro 50Hz (M03008): Built before the 26th week of 2025, Identified in the App as V4 and prior.



Note: Compass Core does not have the High Voltage Range.

High Voltage Range: Second Generation

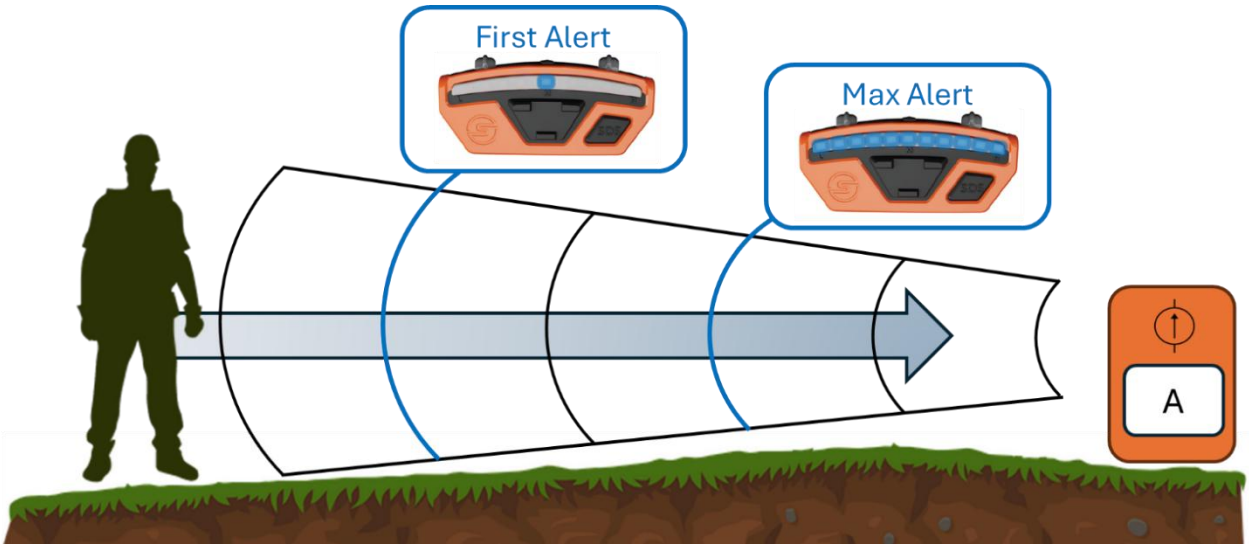
Compass Pro 60hz (M03006): Built on and after the 28th week of 2025, Identified in the App as V5+.
Compass Pro 50Hz (M03008): Built on or after the 26th week of 2025, Identified in the App as V5+.
Compass Pro IS 60hz (M03011): All units, Identified in the App as V5+.
Compass Pro IS 50Hz (M03012): All units, Identified in the App as V5+.



Note: Compass Core does not have the High Voltage Range.

Current Detection Distances

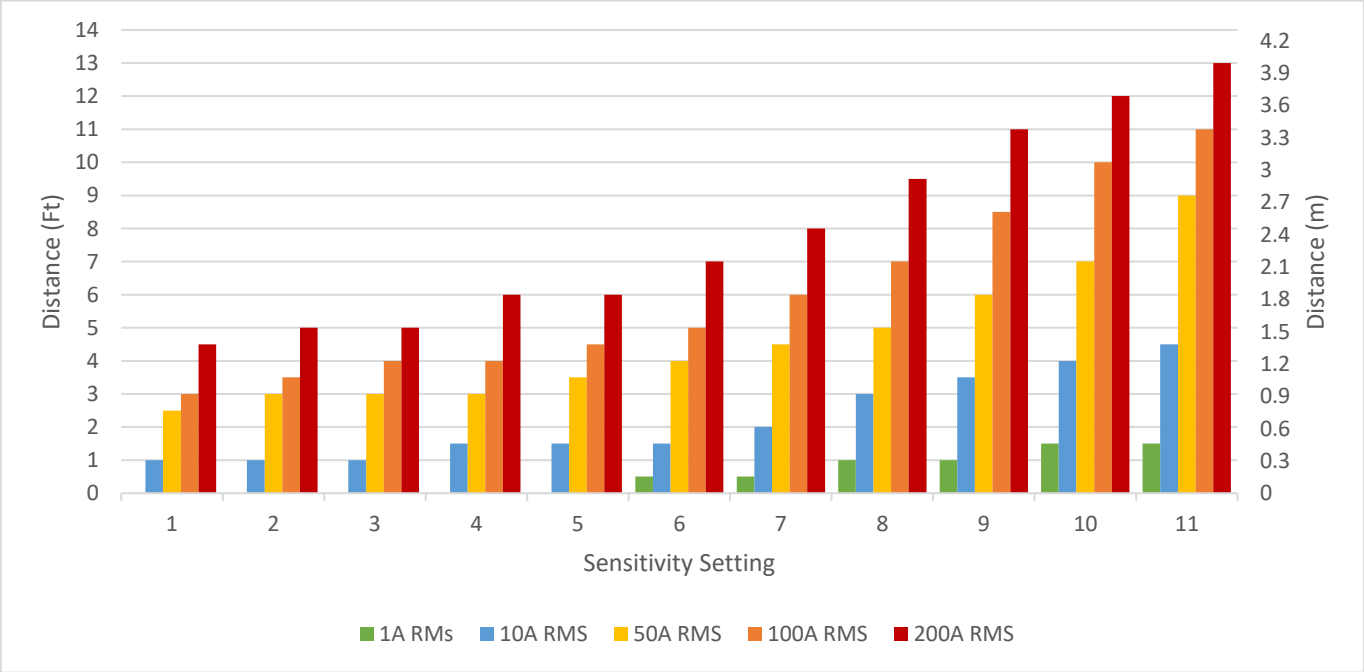
Distances are measured using a cable carrying current 2.5 feet above ground with a COMPASS series device held level with the conductor to represent the direct distance between the COMPASS series device and the conductor.



Max Alert can be expected at roughly 60% the distance of the First Alert. Example: A First Alert at 10ft (3.0m) will generate a Max Alert at 6ft (1.8m).

In the plots below if a setting does not have an entry for a given current, no alert was experienced during testing and that setting is not recommended for use around that current.

Current First Alert Distances

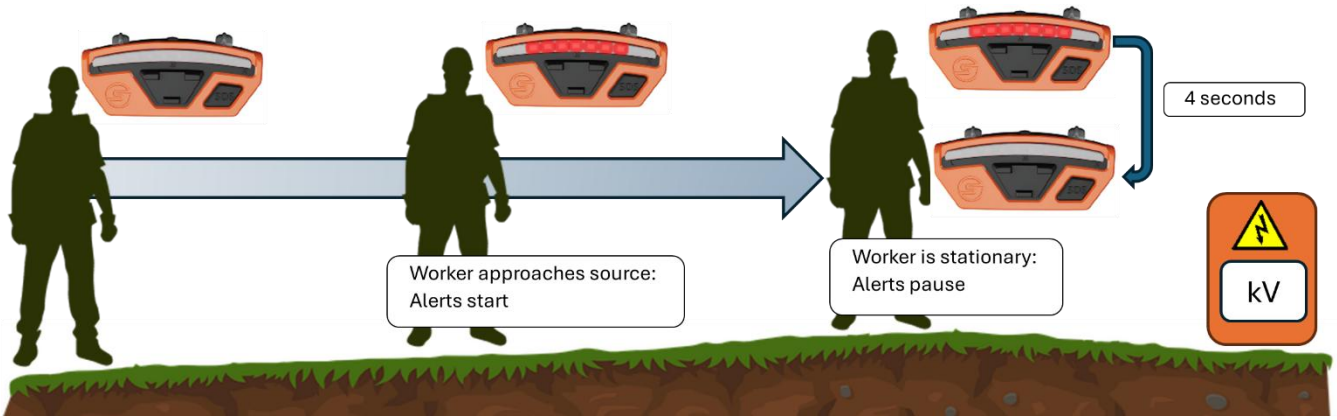


Note: Compass Core has access to setting 11 only.

Smart Adaptive Mode

Smart Adaptive Mode is designed for users working in an environment where electric and magnetic fields are known to be present. When in this mode COMPASS series will adapt to the local ambient fields and pause alerts while the user is working within a small area.

As the user moves towards a source, alerts will be generated. If the user remains stationary in this new location for approximately 4 seconds, the device will adapt to the new ambient field level and the alerts will pause. If the user begins moving toward the source alerts will begin again.



While adapted and in an active field the user will get periodic fading corner lights (no audible alert) of the appropriate color: RED for voltage, BLUE for current.

As the user moves further away from the source, alerts will not be generated. If the user remains stationary in this new location for approximately 4 seconds, the device will adapt to the new ambient field level.

Adapting to a higher field level is indicated by a growing LED pattern and rising sound.
Adapting to a lower field level is indicated by a shrinking LED pattern and a lowering sound.

Note: Compass Core does not have Smart Adaptive Mode

Emergency Events

While using COMPASS series devices with an active subscription to Safeguard Navigator, a COMPASS series device can communicate emergency events to and from other users. The device shows this by flashing the corner LED's ORANGE and WHITE three times with an accompanying sound. After this, the regular heartbeat will be replaced with a silent WHITE/ORANGE emergency pulse animation until you check the Navigator Mobile emergency chat.

Automatically Created Emergency Events

The below events can be automatically detected and sent by your device.

Impacts

 An impact event is generated when:
The COMPASS series device is appropriately mounted on a hard hat (see mounting instructions).
The impact is in a downward direction.
The force of the impact experienced is enough that it could cause a concussion.

Falls

 A fall event is generated when the COMPASS series device experiences a 6ft (1.8m) fall.

Arc Flash

 An arc flash event is generated when the COMPASS series device detects light characteristics of an arc flash severe enough to cause injury.

No Motion Detected / Man Down

 When no motion is detected by the COMPASS series device for 60 seconds following the initiation of an emergency event this is added to elevate the urgency of the emergency event. An additional notification will be sent to the user's response team. No movement does not trigger an event by itself.

Manually Created Emergency Events

SOS

An SOS event is triggered when the user presses and holds the SOS button on the COMPASS series or the in-App SOS button for 3 seconds.

Serial Number & Identification

Compass series devices can be identified from the product labeling and from within Navigator Mobile.

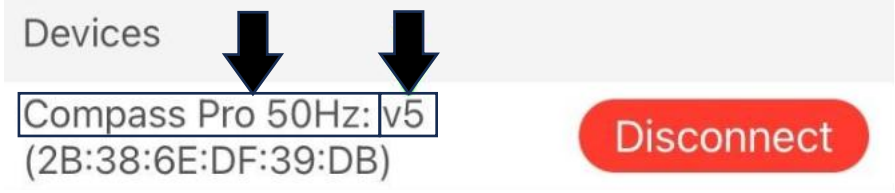
Identification Using the Product Label

MMMMMM = Model Number
RR = Model Revision Number
WW = Week Produced
YY = Year Produced
XXXX = Sequential Serial Number
Data Matrix = MMMMMM + RR + WW + YY + XXXX

Identification Using Navigator Mobile

With the device connected to Navigator Mobile, navigate to the “Tools” page and look at the “Devices” section.

- The device type being used is shown (Compass Pro 50Hz) in this example.
- The hardware version of the device is shown (v5) in this example.



Self Test

COMPASS series performs a periodic self-test routine during operation to verify the operation of its internal sensors. If any faults are detected, COMPASS series will show this by flashing the corner LED's RED and YELLOW.

If your COMPASS series remains in this state, please fill out an RMA form at: SafeguardEquipment.com/return or call 208-773-9263 for assistance.

Compass Pro IS Annex

Compass Pro User Guide IS Annex.pdf

Safety Disclosures

- Verify your COMPASS series device firmware is updated to ensure its behavior matches what is described in this guide. Connect your device to Navigator Mobile to receive the latest update.
- Before field use, always verify correct device operation by testing with a known source of voltage/current.
- Always adhere to proper high voltage electrical safety practices.
- Extreme humidity may decrease the voltage/current detection capabilities.
- Some materials may shield electromagnetic fields from the detection circuits of COMPASS series.
- COMPASS series is intended to be used as a secondary voltage detection method only.
- Warning distances can vary due to a live conductor's exposed surface area, elevation above ground, and proximity to other grounded conductive objects.
- If the user is walking briskly, this may reduce initial warning distances.
- 3-phase systems can hinder detection accuracy by creating electric fields that cancel out in certain areas.
- Smart Adaptive Mode should be used only by experienced electrical professionals.

Ordering Information

Part#	Description
M01009	KIT, Compass PRO, 50Hz
M01012	KIT, Compass PRO, 60Hz
M01023	KIT, Compass PRO IS, 60Hz
M01024	KIT, Compass PRO IS, 50Hz
M01029	KIT, Compass CORE, 60Hz
M01030	KIT, Compass CORE, 50Hz
M01006	KIT, Accessory, PRO Clips, 25 Qty
M01006B	KIT, Accessory, Wrist Mount/Strap/Card
M01014	KIT, Accessory, Collapsible Handheld
M01005	KIT, Accessory, Non-Brimmed Helmet Adapter
M01018	KIT, Accessory, IDRA2 Helmet Adapter
M01025	KIT, Accessory, Petzl Vertex Helmet Adapter
M01026	KIT, Accessory, Adhesive Helmet Adapter
M01027	KIT, Accessory, SECRA-1 Red Helmet Adapter
M01028	KIT, Accessory, SECRA-1 Black Helmet Adapter
M01031	KIT, Accessory, Hot Stick Adapter

For all device and software sales please contact us at sales@safeguardequipment.com

End User License Agreement

Please see the Safeguard Equipment End User License Agreement for terms and conditions.
https://www.safeguardequipment.com/end-user-license-agreement/