

Sensorium™ Safety Zone — Installation & Quick-Start Guide

Mount, position, wire power and the local alert output, pair to the Gateway over BLE, and commission the proximity & zone safety-sensing module.

[sensorium-safety-zone-installation](#) · Revision Draft (Preliminary) · 2026-07-07 · Status:

PRELIMINARY

PRELIMINARY. This guide describes the intended installation procedure. Every value marked `[TBD]` is pending engineering confirmation and must not be treated as final. Do not rely on any figure, torque, rating, or timing in this draft for a live installation until it is confirmed.

⚠ WARNING — Not a protective / machine-stopping device. The Sensorium™ Safety Zone is a proximity & zone **sensing** module that **raises alerts** when a person or object enters a monitored zone. It does **not** stop machinery and is **not** a certified safety-rated protective device. Do not use it as a substitute for fixed guarding, emergency-stops, light curtains, or a certified functional-safety system, and do not rely on it as the sole protective measure. Personnel safety must not depend on this device. The installation is complete once the commissioning walk-test (§8) proves that a zone intrusion is detected and the expected alert is raised, from every approach direction.

1. About this guide

Product	Sensorium™ Safety Zone (Safety Zone Sensors)
Family / role	Sensorium™ · Sense
Function	Proximity / zone-intrusion detection near hazards; raises alerts to the gateway/dashboard (alerting only)
Interfaces	Local alert output (non-safety) · BLE uplink to the 5Tech Platform via the Sensorium™ Gateway
Audience	Qualified installation personnel familiar with the site's safety rules and the host equipment
Scope	Unbox → mount & position → wire power + alert output → power-on → pair to Gateway (BLE) → configure monitored zones → commission (detection & alert walk-test) → hand off to the manual

Conventions. Procedures are numbered, one action per step, in the imperative ("Mount...", "Verify..."). **A warning always appears before the step it applies to.** Each step states the result to expect. Signal words follow the 5Tech standard:

-  **DANGER** — imminent hazard that will cause death or serious injury if not avoided.
-  **WARNING** — hazard that could cause death or serious injury.
-  **CAUTION** — hazard that could cause minor or moderate injury.
-  **NOTICE** — practice that could cause equipment or property damage, no personal injury.

Related documents. Full operation, configuration, maintenance, and troubleshooting live in the Sensorium™ Safety Zone **manual** (§9). The uplink to the 5Tech Platform is provided over BLE by the **Sensorium™ Gateway** — see its installation guide. Exact specifications are in the Safety Zone **datasheet**.

2. In the box

IN THE BOX



Safety Zone unit
×1



Mount bracket



Connectors



Alignment guide



Quick-start card

Contents — verify against the checklist; contact info@5tech.ca if anything is missing.

Figure FIG-001 — Everything that ships with the Sensorium™ Safety Zone sensor. Contents preliminary.

 **NOTICE.** Inspect every item for shipping damage before installing. Do not install a unit with a cracked enclosure, a scratched or fogged sensing window, or damaged connectors — a compromised sensing window can degrade detection. Contact 5Tech support if anything is missing or damaged.

ITEM	QTY	NOTES
Sensorium™ Safety Zone sensor unit	1	Proximity & zone sensing head
Mounting bracket / hardware	1	Type and fasteners [TBD]
Field-wiring connector set (IP-sealed)	1	Power / local alert output
Interface / pigtail cable	1	Length [TBD]
Quick-start card	1	Points to this guide and the manual

Exact pack-out, quantities, and part numbers are [TBD] pending final BOM confirmation.

3. Required tools & safety

3.1 Tools & materials

ITEM	FOR	SPEC
Hex / driver bits	Mounting fasteners	Size [TBD]
Calibrated torque driver	Fastener torque	Range [TBD]
Level / inclinometer	Sensor positioning / aiming	—
Wire strippers / ferrule crimper	Field wiring	Conductor size [TBD]
Multimeter	Verifying supply & alert-output continuity	—
Personal fall / lockout equipment	Working at height / on machinery	Per site rules

3.2 Safety before you start

 **DANGER — Lockout/tagout.** Isolate and lock out **all** energy sources on the host machine (electrical, pneumatic, hydraulic, stored/gravity) before mounting or wiring anywhere on or near the machine. Verify zero energy. Do not rely on the Safety Zone sensor for personnel protection at any time — it is an alerting sensor, not a protective device.

⚠ **WARNING — Not a protective device.** The Safety Zone raises alerts only; it has **no machine-stop or functional-safety function**. Do not wire its outputs into a machine safety-stop circuit or represent it as a safety-rated interlock. It supplements — it does not replace — guarding, emergency-stops, and certified safety systems.

⚠ **WARNING — This device does not replace guarding.** The Safety Zone supplements the machine's safety system with awareness and alerts. It does not remove the need for fixed guards, emergency-stops, or the machine's own safety functions. Do not use it as the sole protective measure.

◆ **CAUTION — Keep the sensing window clear and undamaged.** A dirty, fogged, or damaged sensing window degrades detection and can cause missed alerts. Keep the window clean and unobstructed.

Residual risks (preliminary — to be finalised in the manual): detection can be defeated by an obstructed or dirty sensing window, misalignment, an incorrectly configured zone, or reflective/absorptive surfaces — resulting in **missed alerts**. Commissioning (§8) and the maintenance schedule in the manual mitigate these; they are not eliminated.

4. Mounting & sensor positioning

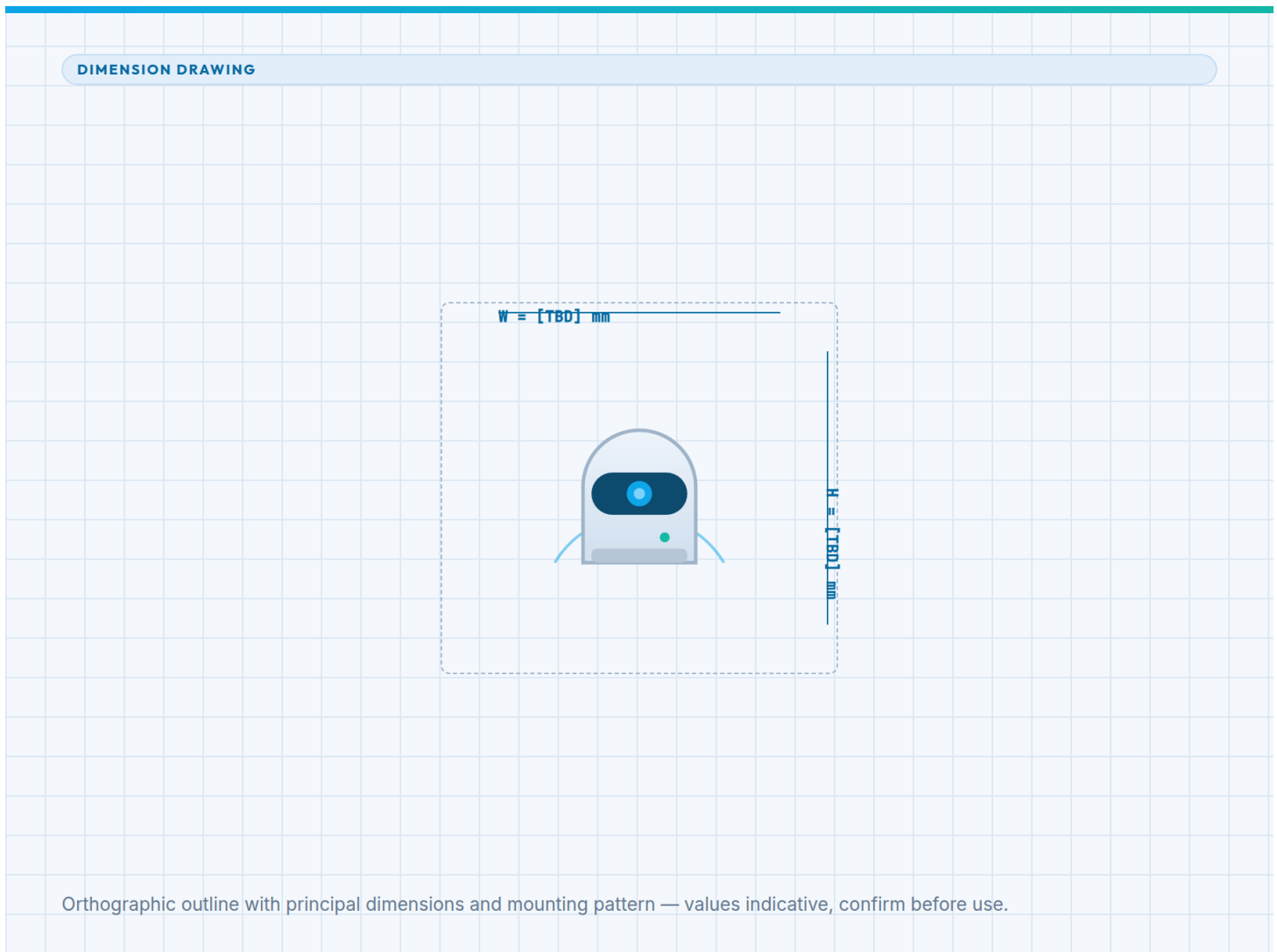


Figure FIG-002 — Front, side, and top elevations with mounting pattern (mm). Values preliminary — all dimensions [TBD].

MOUNTING



- 1 Select mounting position
- 2 Fit DIN clip / wall bracket
- 3 Set orientation / field-of-view
- 4 Secure fasteners
- 5 Verify clearance

Figure FIG-003 — Mounting position and sensing coverage over the hazard, with the monitored-zone boundary indicated.

⚠ WARNING — Coverage determines what is detected. If the sensing coverage does not include every approach path into the monitored area, a person can enter undetected and **no alert is raised**. Coverage must be verified during commissioning (§8). Treat the coverage shown in FIG-003 as illustrative only until confirmed against the actual machine geometry.

📌 NOTICE — Mounting values pending. Mounting height, standoff distance from the hazard, minimum/maximum sensing range, and blind-spot geometry are all [TBD]. Do not finalise the physical layout from this draft.

Procedure

1. Confirm the mounting location and orientation against FIG-003, so the sensor's coverage includes the monitored area and every approach path you intend to detect. *Expected result: a location where no approach you want to monitor is outside coverage.*

2. Verify the mounting surface is rigid and rated to carry the unit and bracket without vibration or flex. *Expected result: a stable surface; add reinforcement if it flexes.*



NOTICE. Vibration or a flexing mount shifts the coverage over time and can drift the sensor out of alignment. Do not mount to sheet metal, guarding, or removable panels.

3. Position the mounting bracket using the hole pattern in FIG-002 and mark the holes. *Expected result: holes marked to the [TBD] pattern.*
4. Fasten the bracket, then mount the sensor to the bracket. Tighten fasteners to [TBD] N·m with a calibrated torque driver. *Expected result: the unit is rigidly secured, no play.*



CAUTION. Do not over-torque; exceeding the [TBD] limit can distort the enclosure or sensing window and impair detection.

5. Aim the sensor so it is level and centred over the monitored area, using a level/inclinometer and the alignment reference in FIG-003. *Expected result: the coverage is aimed level and symmetric over the monitored zone.*
6. Confirm the sensing window is clean and unobstructed — no guarding, cabling, fixtures, or structure clips the coverage. *Expected result: a clear, unobstructed optical path.*



WARNING. Any object inside the coverage creates a permanent blind spot. A person can pass through a blind spot undetected, so no alert is raised. Remove obstructions or re-site the sensor.

Final coverage is not confirmed here — it is proven by the walk-test in §8.

5. Wiring & connections

WIRING

Terminal	Signal	Rating
PWR A	+ / - redundant input A	[TBD]
PWR B	+ / - redundant input B	[TBD]
ETH	network / PoE	[TBD]
FIELD	sensor / fieldbus	[TBD]

Terminal assignments — observe polarity on redundant inputs; ratings per the datasheet.

Figure FIG-004 — Power in and the local alert output. The uplink to the Gateway is wireless (BLE) — no network cable. Terminal detail preliminary.

-  **DANGER — De-energise first.** Confirm lockout/tagout and zero energy on the host machine and the sensor supply before making any connection. Working on a live machine can cause unexpected motion.
-  **WARNING — The alert output is non-safety.** The Safety Zone's local alert output drives an audible/visual alert (beacon/horn) only. It must **not** be wired into a machine safety-stop circuit, safety relay, or e-stop chain, and must not be used as a safety interlock. Its signal type and electrical rating are [TBD] — wire it only to a non-safety alert device.
-  **NOTICE — Separate and seal the wiring.** Route the alert conductors away from power and high-noise cabling, use the specified connectors, and maintain the enclosure's environmental sealing by seating every seal.

CONNECTION	SIGNAL	WIRE TO	NOTES
Power input	24 V DC, 18–30 V	Isolated supply	Polarity / fusing [TBD]
Local alert output	Audible / visual alert signal	Local alert device (beacon / horn)	Non-safety; does not stop machinery; rating [TBD]
Uplink to Gateway	Bluetooth Low Energy (BLE) — wireless	Sensorium™ Gateway → 5Tech Platform	No cable; paired in §7
Functional earth / shield	Ground	Machine ground	Per [TBD]
Auxiliary I/O (status)	Digital I/O	Optional	Non-safety; do not use for machine stop

Procedure

1. Connect the functional earth / shield first. *Expected result: chassis bonded to machine ground.*
2. Wire the local alert output to its non-safety alert device (beacon/horn) per FIG-004. *Expected result: an alert-signal path to the alert device.*

 **WARNING.** Do not land the alert output on a machine safety input, safety relay, or e-stop chain. It is a non-safety signal and provides no protective function.

3. There is **no network cable** to the Gateway — the uplink is wireless (BLE) and is established by pairing in §7. *Expected result: no uplink conductor to land.*
4. Connect the power input last, observing polarity and the 24 V DC (18–30 V) supply rating. *Expected result: all connectors seated and sealed; unit still de-energised.*
5. Verify every connector is fully seated and every seal is closed to maintain the enclosure's environmental sealing. *Expected result: a sealed, strain-relieved harness.*

Do not energise the machine yet — power-on and indicator checks come first (§6).

6. Power-on & indicators

STATUS INDICATORS

Indicator	State	Meaning
Power	● steady	unit powered
Link	● steady	connected to Platform
Activity	● blinking	data flowing
Fault	● steady	attention required

Indicative LED scheme — final states confirmed in the manual.

Figure FIG-005 — Indicator states with a legend: power, sensing/OK, zone-clear vs. zone-intrusion (alert active), network, and fault. Colors/patterns preliminary.

⚠ WARNING — Keep clear at first power-on. Keep all personnel out of the machine's hazard area during the first power-on, and keep the host machine locked out until commissioning (§8) is complete. The monitored zone is not yet configured or verified — remember the sensor does not stop the machine, so it provides no protection during this stage.

Procedure

1. With the machine still locked out, apply power to the sensor only. *Expected result: the power indicator illuminates and the unit begins its self-test/boot (pattern [TBD]).*
2. Wait for the self-test to complete. *Expected result: the sensing/OK indicator shows a normal running state ([TBD]); no fault indicator.*

 **NOTICE.** If a fault indicator shows, do not proceed. Record the state and see the manual's troubleshooting section. A sensor reporting a fault is not detecting and raises no alerts.

3. Confirm the network indicator shows a BLE link to the Sensorium™ Gateway. *Expected result:* BLE link established ([TBD]); the sensor is reachable from the 5Tech Platform. (If not yet paired, complete §7 first.)

Indicator legend (preliminary — states and colors [TBD])

INDICATOR	STATE	MEANING
Power	[TBD]	Supply present
Self-test / boot	[TBD]	Power-on self-test in progress
Sensing / OK	[TBD]	Sensing active, zone clear
Zone intrusion	[TBD]	Object/person detected in a monitored zone — alert active
Network	[TBD]	BLE link to Gateway / Platform
Fault	[TBD]	Sensor fault — not detecting; no alerts raised

7. Pairing & configuring monitored zones

The Safety Zone reaches the 5Tech Platform over BLE through the Sensorium™ Gateway. Pair it to the serving Gateway first, then configure the monitored zones. Confirm the Gateway is installed, powered, and online before pairing.

 **WARNING — Zone configuration defines what raises an alert.** The monitored zone is what triggers the alert. A zone that is too small, mis-placed, or that excludes an approach path leaves that approach unmonitored, so no alert is raised. Configure zones to cover the approaches you need to monitor.

Procedure

1. On the Gateway's commissioning interface, open the device list and start **add / pair a device** [TBD]. Enter or scan the sensor's device identity / pairing token, and complete the BLE pairing handshake. *Expected result: the sensor appears as paired / online in the Gateway's device list and is reachable from the 5Tech Platform.* Access method and credentials are [TBD]; see the manual.
2. Define each monitored-zone boundary so it fully covers the area and every approach path you intend to detect. *Expected result: a zone boundary that no one can cross without being detected.*
3. Confirm no permitted work position or walkway falsely sits inside the zone in a way that would nuisance-trip, and no approach you need to monitor is left outside it. *Expected result: a zone that alerts on real intrusions and covers the approaches you need.*
4. Save the configuration and record the zone definition, parameters, and configuration version for the commissioning record. *Expected result: a documented, versioned zone configuration.*

 **NOTICE.** Any later change to the zone, mounting, or alignment invalidates the commissioning result. Re-run the walk-test (§8) after any change.

8. Commissioning verification (detection & alert walk-test)

 **WARNING — The install is not valid until this test passes.** Commissioning must prove that a real intrusion into each monitored zone is **detected and raises the expected alert** (a dashboard notification and the local alert output), from every approach direction, before the sensor is relied on for awareness. Do not accept the install on the basis of indicators or configuration alone. Remember the sensor does not stop the machine — it alerts only.

 **WARNING — Controlled test conditions.** Perform the walk-test with the host machine locked out or in a controlled state, with no untrained personnel in the area. Use a test piece/probe to break the zone where entering the hazard yourself would be unsafe.

Procedure

1. Confirm mounting, positioning, and wiring (§4–§5) are complete and the alert output is landed on its non-safety alert device only. *Expected result: nothing wired into a safety circuit.*
2. With the sensor paired and the monitored zone active, confirm the sensing/OK indicator is normal. *Expected result: sensor online; monitored zone active; sensing/OK indicator normal.*

3. Introduce a test piece (or a person, only where safe) into the monitored zone from the **first approach direction**. *Expected result: the zone-intrusion indicator asserts, a dashboard notification is raised, and the local alert output activates.*

 **WARNING.** If no alert is raised, treat the coverage as inadequate: stop, and correct the alignment, zone, or alert-output wiring before continuing.

4. Repeat the intrusion test from **every** approach direction and at the zone edges, including low and high approaches as the geometry requires. *Expected result: an alert on every intrusion, with no undetected approach into the monitored area.*
5. Verify the alert clears correctly when the zone is vacated and follows the defined reset behaviour ([TBD]). *Expected result: the alert clears on exit; no stuck or missed alerts.*
6. Verify a fault condition (e.g. obscured/disconnected sensor, [TBD] method) is reported as a fault and, where configured, raises a fault alert. *Expected result: loss of detection is reported, not a silent failure.*
7. Record the results — date, tester, zone/configuration version, each approach tested, and pass/fail — and retain the commissioning record. *Expected result: a signed commissioning record.*

 **NOTICE — Sign-off.** Per the 5Tech manual standard, the zone configuration and this commissioning result should be reviewed and signed off before the sensor is relied on. The installation is complete only when every approach direction has been proven to raise an alert and the record is signed. This does not make the device a safety-rated protective system.

Commissioning checklist

- [] Machine locked out during mounting and wiring; zero energy verified.
- [] Sensor rigidly mounted; fasteners torqued to [TBD].
- [] Coverage aimed level and centred; no obstructions/blind spots.
- [] Alert output landed on a non-safety alert device only; not wired into any safety circuit.
- [] Power-on self-test passes; no fault; BLE link to Gateway up.
- [] Monitored zone configured to cover the required approaches; version recorded.
- [] Walk-test raises an alert from **every** approach direction.
- [] Alert clears on exit; reset behaviour correct.
- [] Fault condition is reported (not silent).
- [] Commissioning record completed and signed.

9. Next steps

Full operation, monitored-zone tuning, indicator reference, maintenance intervals (including sensing-window cleaning), and troubleshooting are in the Sensorium™ Safety Zone **manual** — [manuals/sensorium-safety-zone-manual/](#).

Related documents

- **Manual:** [manuals/sensorium-safety-zone-manual/](#) — operation, configuration, maintenance, troubleshooting.
- **Datasheet:** [datasheets/sensorium-safety-zone-datasheet/](#) — confirmed specifications.
- **Gateway:** [installation/sensorium-gateway-installation/](#) — the BLE uplink to the 5Tech Platform.
- **Works with:** 5Tech Platform (Monitoring · Automation · AI assistance) via the Sensorium™ Gateway.

Figures

ID	TITLE	STATUS	FILENAME	PURPOSE
FIG-001	In the Box	Missing	figures/in_the_box.png	What ships in the box
FIG-002	Dimension Drawing	Missing	cad/dimension_drawing_mm.png	Mounting dimensions (mm)
FIG-003	Mounting & Field-of-View Alignment	Missing	figures/mounting_and_alignment.png	Mounting position and FoV alignment/aiming
FIG-004	Wiring — Power, Network & Alert Output	Missing	diagrams/wiring_machine_stop.png	Power, network, and machine-stop/interlock wiring
FIG-005	Status Indicators & Legend	Missing	figures/status_indicators.png	Indicator states + legend

This guide is preliminary and subject to change. Safety-sensing device (alerting only): the safety content and the detection/alert commissioning walk-test require review before release. See [revision.md](#) for change control, [references.md](#) for sources, and [image_prompts.md](#) / [figures.json](#) for the figure index. Web publication target: </resources/manuals/safety-zone-install>.