



SIGNAL LIVE HUB TECHNICAL DATASHEET



OVERVIEW

The Signal Live Hub v1 is a Bluetooth Low Energy (BLE) to cellular gateway that transmits data from the Converge Bluetooth Signal Sensors to our servers via cellular connectivity.

FEATURES

- Waterproofed and robust design suitable for outdoor construction environments.
- Wireless, automated, and real-time data collection from Converge Signal Sensors.
- Data collection range of up to 15m (50ft) when Signal Sensors are submerged 100mm (4 inches) in concrete.
- The automatic over-the-air update feature enables continuous optimisation by delivering the latest features and improvements.
- Powered by an internal rechargeable battery.

SAFETY INSTRUCTIONS

The following safety instructions include crucial information and guidelines to prioritise safety when interacting with the Signal Live Hub. Whether it is a user, visitor, or operator, these guidelines are designed to ensure a secure and worry-free experience. Ensure that your colleagues are made aware of Converge technology on site, so that it does not get moved during critical pours. Converge strongly recommends that individuals carefully review and adhere to the provided instructions to guarantee a safe and reliable interaction with the hub.

WARNINGS

- This device is intended for use as a gateway in construction and industrial environments, to be used outdoors, and not for use in domestic or commercial settings.
- Please use the cables provided in the box alongside the device.
- The connection of incompatible charger cables to the Signal Live Hub may affect compliance or result in damage to the unit and invalidate the warranty.

INSTRUCTIONS FOR SAFE USE

- Inspect the device upon arrival to ensure it hasn't suffered damage during transit.
- Follow the instructions and guidelines provided by Converge in the Quick Start Guide, which can be found in the box with your device.
- Keep the device in a well-ventilated area. Avoid covering it or placing heavy objects on top of the device.
- Install the device away from areas which may be saw-cut, cored, or drilled through.
- Do not attempt to open or modify the device, any modifications may impair the functionality and safety of the device and will result in invalidating the warranty.
- Do not store at a temperature greater than +45°C or lower than -20°C.
- Keep the cap on the USB-C connector at all times to protect against dust ingress








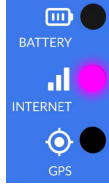

BATTERY SAFETY

- Do not attempt to extract or replace the battery included in the device.
- Use only the power cable provided by Converge to charge the unit. Using an incompatible cable may affect compliance or result in damage to the unit and invalidate the warranty.
- Once the battery is fully charged, unplug it from the charger to prevent overcharging.

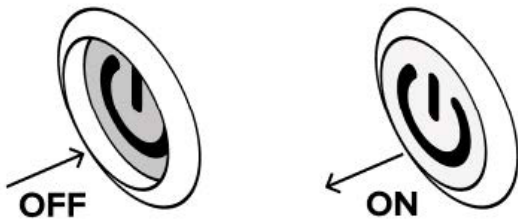
TECHNICAL SPECIFICATION

SKU	CSL-100
Wireless range	Up to 15m (50ft)
Device dimensions (LxWxH)	Without brackets: 175 x 130 x 45 mm (6.9 x 5.1 x 1.7in) With brackets: 175 x 130 x 57.8 mm (6.9 x 5.1 x 2.3in)
Weight	0.7 kg
IP rating	IP67 (Outdoor)
Operational temperature range	-20°C to +50°C (-4°F to 140°F)
Charing temperature range	0°C to +45°C (32°F to 113°F)
Enclosure materials	ABS
Battery chemistry	Lithium-ion Battery pack
Maximum recommended shelf life	2 years
Active battery life	Up to 4 weeks
Internal battery capacity	13.4 Ah
Internal battery voltage	3.6 Volts
Internal battery wattage	48 Wh
Compatible sensors (sold separately)	Converge Signal: CSS-210, CSS-211
Applicable products	ConcreteDNA
Regions of operation	UK, EU, US, Canada, Australia and NZ, Singapore, Hong Kong and India
Compatible charger type	15W, 5V, 3A
End of charing current	350mA
BLE power output	19 dBm (79 mW)

LED INDICATORS

Off		All 3 LEDs are OFF
Setup		All 3 LEDs turn white for 2 seconds then OFF
Searching for network		Internet LED flashes blue for 2 minutes
Good battery		Battery LED flashes green.
Good cellular connectivity		Internet LED flashes green.
Low battery		Battery LED flashes red. Charge the hub until the battery LED turns solid green.
Poor cellular connectivity		Internet LED flashes red. Move the hub to find better cellular connectivity, or wait for connection to be restored.
Over the Air update		Internet LED flashes pink. Wait for device to reboot.
Charging (if ON)		Battery LED flashes amber and turns solid green when fully charged.

HOW TO SET UP AND USE THE SIGNAL LIVE HUB V1



TURNING THE DEVICE ON

Use the Power button on the Signal Live Hub to turn the hub ON and OFF. To activate the device, release the button and to power it off, press the button. The LEDs will all turn white.

CHARGING

To charge the Signal Live Hub, connect the hub to a power supply using the USB-C charging port. Signal Live Hubs should be charged with the cable provided and a compatible charger type: 15W, 5V, 3A.

To visualise the LED charging indicator, make sure the device is ON. Whilst charging, the battery LED will be flashing amber. Once the battery reaches 100%, it will appear solid green. The battery level will also be indicated on the Signal Live page, which can be accessed by scanning the QR code on the Signal Live Hub with any smartphone QR code scanner.

BOOTING UP AND FINDING NETWORK

1. When the Signal Live Hub is turned ON, the hub will take up to 5 minutes to boot up the first time.
2. The 3 LED indicators will turn ON for 2 seconds and then OFF.
3. After booting up, the hub will start to search for a cellular network, with a flashing blue internet LED.
4. Once it gains connection, the internet LED will display green.
5. When the hub is rebooted subsequently, this will take up to 1 minute.

If it is taking a long time to connect to the network, wait 20 minutes until it flashes green before attempting to reboot the device.

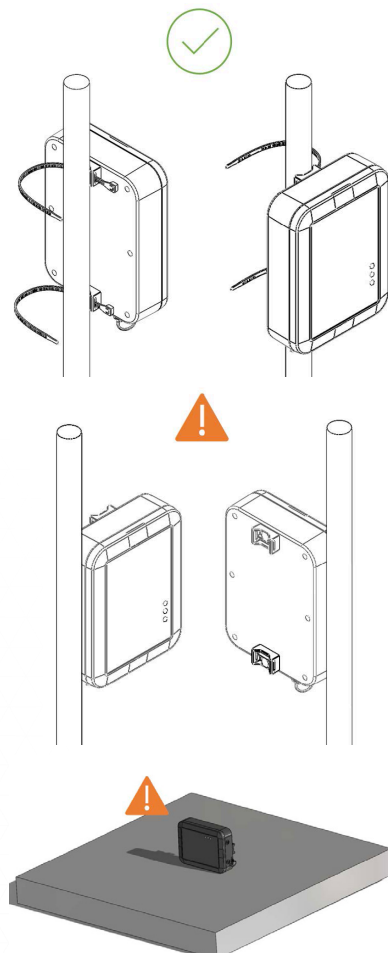
You can check the battery level and internet connection level through the online status page accessed by scanning the QR code on the hub using any smartphone QR code scanner.

FINDING THE OPTIMAL POSITION FOR YOUR SIGNAL LIVE

1. Place the hub with a clear view of the sky, ensuring the internet LED flashes green.
2. Position the hub within 15m (50ft) of the registered Signal devices you want to collect data from.
3. You can check the connectivity of the Hub to its nearby registered Signal devices through the online status page accessed by scanning the QR code on the hub using any smartphone QR code scanner and signing into your Converge account.

INSTALLATION

Mount the Signal Live Hub by utilising the brackets on the rear side, along with a cable tie or wire to fasten it securely to poles, scaffolding, or handrails. Ensure that the device is positioned so that none of its other sides are in contact with any surface, as this could potentially disrupt network connectivity.



SITE ASSIGNMENT

Before using the Signal Live Hub, it will need to be assigned to your jobsite. There are two ways in which this can be done.

AUTO ASSIGNMENT

If there are already Signal devices registered on your jobsite, and the Signal Live Hub detects these devices nearby when it is online, the Signal Live Hub will automatically assign to the same site that the Signal devices are registered on. The Signal Live Hub will appear in the Site Inventory section of the Mobile App and platform.

MANUAL ASSIGNMENT

If there are no Signal devices registered on your jobsite yet, the Signal Live Hub can be manually assigned to the jobsite by scanning the QR code on the hub and navigating to the linked URL in the web browser.

1. Sign into your Converge account to view the Signal Live page;
2. Select the jobsite on which you would like to use the Signal Live Hub. The hub will now also be visible in the site inventory in the ConcreteDNA app.
3. If you do not see your jobsite available to you, please contact your Site Admin user to invite you to the relevant jobsite.

FIRMWARE UPDATES

From time to time, Converge may update the firmware on the Signal Live Hub to have the latest system updates and improvements. Following the firmware update, the hub will automatically reboot and reconnect. During this process, the network LED will be flashing pink.

CONNECTING SIGNAL DEVICES TO THE SIGNAL LIVE HUB V1

When connecting to Signal devices, the Signal Live Hub will connect to a maximum of 20 devices with the strongest signal. These are displayed in the Site Inventory and the Signal Live page accessed by scanning the QR code on the hub.

TROUBLESHOOTING

SIGNAL LIVE HUB NOT CONNECTING TO THE NETWORK

The Signal Live Hub may be positioned in an area with no or poor internet connectivity. Try one of the following options.

1. Relocate the hub to an area with a clear view of the sky or to where your cellphone has network connectivity; wait 20 minutes before attempting to reboot the device.
2. If the device is already in an area with good connectivity, turn off and switch the device on again to scan for connectivity (until the internet LED flashes green)

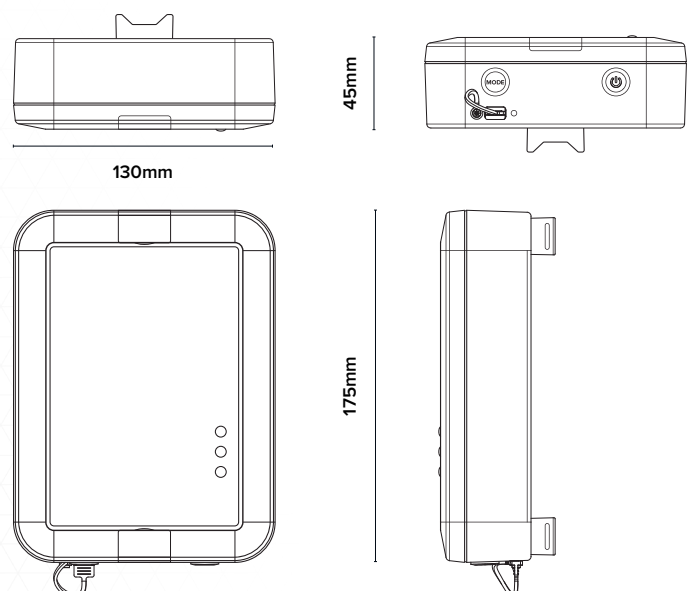
SIGNAL LIVE HUB NOT VISIBLE ON THE JOB SITE

The Signal Live Hub needs to be assigned to a jobsite for it to be visible in Site Inventory. This can be performed in two ways.

1. Turn on your Signal Live Hub and move it in proximity of a registered Signal device. The hub will automatically assign to the same jobsite.
2. Scan the QR code on the hub and navigate to the linked URL in the web browser to assign the hub to your jobsite.

SIGNAL LIVE HUB NOT DETECTING ANY SIGNAL DEVICES

The Signal Live Hub needs to be positioned closer to the Signal devices that it is intended to collect data from. Ensure that the hub is positioned 15m (30ft) from nearby devices. To check the connectivity status of registered devices, the list of connected devices can be viewed on the Signal Live page by scanning the QR code on the hub, or by viewing the Site Inventory on the platform.



REGULATORY INFORMATION

Device certified for FCC, ISED, CE, UKCA.

FEDERAL COMMUNICATIONS COMMISSION (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC: 2A7VH-CSL-101

Contains FCC ID: XMR201903EG25G

ISED CANADA STATEMENTS

This device complies with Industry Canada's license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage;
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC: 28833-CSL-101

Contains IC:10224A-201903EG25G

Signal Live Hub v1 is not recyclable, and should not be disposed of in general household or commercial waste or in landfill. Please speak to the manufacturer for repairs or returns for potential refurbishment or part reuse.

