G6

Technical User Manual

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WARNINGS

- WARNING: To ensure your device can detect gas, do not cover G6 with clothing. See page 19.
- ▲ WARNING: Only perform bump tests in a known clean environment. G6 will not monitor for environmental gas during a bump test. See page 34.
- ▲ WARNING: Only perform calibrations in a known clean environment. G6 will not monitor for environmental gas during calibration. See page 37.
- **WARNING:** Only zero G6 gas sensors in a known clean environment. See page 41.
- ▲ WARNING: G6 will NOT monitor during the firmware update installation process and updates should therefore only take place while your device is in a safe, gas-free environment. See page 54.

1 G6 OVERVIEW

G6 is a portable single-gas detector manufactured by Blackline Safety, providing up to one year of maintenance free operation. G6 comes with the following built-in capabilities:

- Single gas detection for CO, H₂S, O₂, or SO₂
- Direct cellular connectivity to the Blackline Live platform
- GPS tracking to locate people and devices quickly during incidents and daily synchronization
- Precise short term exposure limit (STEL) monitoring
- Purpose-built single-source reporting to record compliance, gas exposure, and usage

G6 continuously monitors gas concentrations in the ambient environment and activates low and high urgency notifications when concentrations exceed setpoints, allowing operators to respond quickly and safely to changes in their environment.

1.1 SUPPORTED GASES

G6 supports detection of the following gases:

- Carbon monoxide (CO)
- Hydrogen Sulfide (H₂S)
- Oxygen (O₂)
- Sulfur dioxide (SO₂)

For more information on G6 gas detection sensor capabilities, refer to our *Detailed Specifications*.

1.2 BLACKLINE SAFETY SERVICES



1.2.1 BLACKLINE SAFETY MONITORING

G6 does not currently support Blackline Safety Monitoring services. Gas events are monitored via on-device notifications and configured in Blackline Live. If configured, gas event notifications are sent via SMS and email at the time of the event.

1.2.2 BLACKLINE LIVE

Blackline Live monitors your G6 devices, allows you to access reports, and, depending on your plan, business analytics insights.

Blackline Live also allows you to create and customize configuration profiles that determine how a device, or a group of devices, operates in the field.

By default, G6 connects and synchronizes with Blackline Live each day.

For more information, please see <u>Blackline Live</u>.

1.2.3 BLACKLINE ANALYTICS

If enabled by your service plan, Blackline Analytics allows you to review data collected from your device fleet to make decisions, follow up with your team, and ensure everything is running smoothly. Blackline Analytics provides a variety of pre-defined reports and filters to explore your data.

For more information, please see <u>Blackline Analytics</u>.

1.3 COMMUNICATION INTERVALS

By default, G6 automatically connects and synchronizes with Blackline Live every 24 hours and while secured in G6 Dock. G6 also connects with Blackline Live when a high urgency notification is activated.

NOTE: More frequent connections to Blackline Live can impact G6's battery life. For more information, refer to *Battery*.

If G6 is unable to connect and synchronize with Blackline Live, event data is stored on the device and communicated to the Blackline Safety Cloud during the next scheduled synchronization.

IMPORTANT: If you want to retrieve data directly from your device, Blackline Safety recommends powering off the device when it is safe to do so and contacting *Customer Care* for assistance.

1.4 WHAT'S IN THE BAG

G6 comes with:

- G6 personal safety monitoring device
- Metal alligator clip
- Pre-installed single-gas sensor
- G6 Getting Started Guide
- G6 certification card

1.5 HARDWARE DETAILS



Figure 1-1: G6 Front



Figure 1-2: G6 Back



Figure 1-3: G6 Side



1.6 OPTIONAL ACCESSORIES

Optional accessories available for G6 include:

- G6 Dock (G6-DOCK-NA)
- G6 charge clip and USB charge cable (ACC-G6-CLPCAB)
- G6 calibration cap and tubing (ACC-G6-CALTUB)
- G6 intrinsically safe screen protector (ACC-G6-SP)



1.7 BATTERY

G6 is equipped with a rechargeable battery.

The following activity will impact G6 battery life:

- Cellular connectivity
- GPS synchronization
- Quantity and duration of:
 - Manual bump tests and calibrations (not in G6 Dock)
 - Low and high urgency notifications
 - Manual synchronizations with Blackline live
- Length of time to resolve notifications/Home screen banners

Blackline Safety recommends charging the battery on a regular schedule. For information on purchasing G6 charging accessories, contact *Customer Care*.

2 OPERATION

Interacting with G6 is easy with its LCD display and push button menu system.

NOTE: This manual describes all available options. Your screen may be different, depending on your device's configuration.

2.1 G6 PUSH BUTTONS



Center button

Press and hold for 3 seconds to power on G6.

Press to enter the Global Navigation menu, and to confirm navigation banner selections.

Navigation buttons

Press to navigate the current screen and confirm navigation banner selections.

2.2 POWERING ON G6

Powering on G6 initiates the device start-up sequence. The start-up sequence depends on the device's configuration and occurs any time the device is powered on.

NOTE: Blackline Safety recommends powering on G6 in a known clean environment.

To power on G6:

- 1. Press and hold the center button until the Blackline Safety logo displays.
- 2. G6 connects to Blackline Live and initializes your device, performing a hardware self test of lights, sound, and vibration indicators.

NOTE: Your device will only display the G6 update complete screen during the power on sequence if your device has been restarted due to a firmware installation. Firmware installation is initiated using the Update device menu or by removing a device from G6 Dock.



NOTE: Ensure you allow adequate time for the device to complete the required updates. Initialization may take up to 30 minutes if an O₂ device requires an extended amount of time to stabilize its sensor.

If G6 requires additional time to establish a network connection, the device enters an extended initialization sequence.

If G6 is configured to zero on start up, your device will indicate whether the operation was successful. If the zero was unsuccessful, use the Gas options menu to manually zero your device. For more information, refer to *Zeroing G6*.

3. When configuration is complete, the device's preconfigured organization name and Device ID information displays.

When the Home screen opens, the detector is operational.

For more information on the Home screen, refer to *Home screen*.



2.2.1 POWERING OFF G6

Although G6 is meant for continuous use, you can manually shut down G6 using your device's Device settings menu. For more information, refer to *Power off Menu*.

NOTE: If G6 powers off due to low battery, you can re-charge the device. For more information on purchasing charging accessories, contact *Customer Care*. For more information on G6 low battery notifications, refer to *Low battery*.

2.3 G6 LCD DISPLAY

2.3.1 HOME SCREEN

The Home screen conveys the current device (event) status, and information about the type of event (if present) through screen status and banner messages.



G6 has three Home screen statuses:



IMPORTANT: If G6 has more than one notification simultaneously active, the Home screen status displays the status of the highest urgency event and the Home screen banner cycles through each active event banner, which is displayed for 60 seconds per banner.

2.3.2 GLOBAL NAVIGATION MENU

The Global Navigation menu provides access to all your available G6 features.

NOTE: The available items in the Global Navigation menu depend on how G6 is configured in Blackline Live.



To launch the Global Navigation menu:



1. From the Home screen, select **H** by pressing the center button. The Global Navigation menu opens.

The Global Navigation menu background reflects G6's current event status and the last menu item you navigated from is highlighted.



The available Global Navigation menu items are:



Home

Select Home to return to the Home screen.

Compliance

Select Compliance to access information and features related to G6 bump testing, calibration, and zeroing.

For more information, refer to *Gas Detection*.

Gas options

Select Gas options to view information about logged gas readings. Use the Gas options feature to reset a device's gas reading values. View and manage information related to the following gas readings:



Peak gas — Peak gas is not a live reading; it is the highest registered gas reading a device has experienced through one or more gas events in a 24-hour period. The reading, and the time and date when it occurred, are displayed.

Short Term Exposure Limit (STEL) — STEL is the acceptable exposure limit to a toxic or an irritant substance over a short period of time (time-weighted average), usually 15 minutes. The time interval is configurable by your Blackline Live administrator. STEL represents the rolling average of a live gas reading over the duration of the pre-configured time interval.

For more information, refer to *Gas Detection*.

To navigate the Global Navigation menu:

1. Use the G6 push buttons to navigate and confirm selections on the G6 display.

For more information, refer to G6 Push Buttons.

2.4 WEARING G6

G6 monitors you best when clipped to your belt or chest pocket. G6 is equipped with a springloaded metal alligator clip that is used to temporarily secure the device in place.

To attach and fasten G6 in place using the metal alligator clip:

- 1. At the back of the device, open the metal alligator clip.
- 2. Place the clip over the top of the fabric edge or belt.
- 3. Snap the clip closed, testing the attachment to ensure the clip is secure.
 - **A** WARNING: To ensure your device can detect gas, do not cover G6 with clothing.

2.5 USING G6 IN EXTREME WEATHER

G6 is rated to operate in weather conditions as low as -20°C (-4°F) and as high as 55°C (131°F). G6 will function in temperatures colder than -20°C (-4°F) for short periods of time, but Blackline Safety does not recommend letting the device's internal temperature drop below -20°C (-4°F).

For more details, see <u>Operating Devices in Extreme Weather</u> on the Blackline Support site.

3 OPERATIONAL NOTIFICATIONS

Operational notifications are used to communicate events that are triggered by routine and expected device operations. Operational notifications provide you with information or prompt you to take action.

An operational notification includes yellow flashing lights, sound, vibration (if enabled), and an on-screen message specific to the event.

NOTE: Operational notification lights, sound, and vibration automatically mute after two minutes.

Operational notifications are local to your device. Event data related to operational notifications is uploaded to Blackline Live during the scheduled communication interval for your device.



3.1 ACKNOWLEDGING OPERATIONAL NOTIFICATIONS

Operational notifications are activated when G6 requires your attention. Operational notifications repeat until you acknowledge them, or they time out.

NOTE: To allow you to read and understand notifications, and to avoid accidentally muting the notification, there is a 2-second delay on your ability to acknowledge full screen notifications.

To acknowledge and mute an operational notification:

1. Select \bigotimes by pressing the center button.

If G6 is within compliance (e.g., a bump test or calibration is due, but not overdue) and free of any gas related abnormalities, low battery warnings, or device errors, G6's Home screen will have an OK status (green).

If G6 is not in compliance (e.g., a bump test or calibration is overdue), or if gas related abnormalities, low battery warnings, or device errors are active, G6's Home screen will reflect the notification status.

2. To ensure G6 continues to operate correctly, take the action indicated by the device to address the notification.

3.2 OPERATIONAL NOTIFICATION TYPES

Operational notifications are:

- Bump test overdue (Optional)
- Calibration overdue (Optional)
- Low battery



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Bump test overdue (Optional)

The Bump test overdue notification is activated when G6 is overdue for a bump test.

The bump test overdue notification is optional, and the notification interval is configurable by your Blackline Live administrator.

When you acknowledge the notification, G6's Home screen and banner reflect the bump test overdue status until the event is resolved.

Following the bump test overdue notification, the Compliance screen will indicate that a bump test is overdue (orange). The screen will also display a Bump test due date of **Overdue**.

For more information on manually bump testing your device, refer to *Bump Testing G6*.

Calibration overdue (Optional)

The calibration overdue notification is activated when G6 is overdue for calibration.

The calibration overdue notification is optional, and the notification interval is configurable by your Blackline Live administrator.







When you acknowledge the notification, G6's Home screen and banner reflect the calibration overdue status until the event is resolved.

Following the calibration overdue notification, the Compliance screen will indicate a calibration is overdue (orange). The screen will also display a Calibration due date of **Overdue**.

For more information on manually calibrating your device, refer to *Calibrating G6*.

Low battery

The low battery notification is activated when G6 detects that it is operating below the configured low battery threshold.

The low battery notification interval is configurable by your Blackline Live administrator.

When you acknowledge the notification, G6's Home screen and banner reflect the low battery status until the event is resolved.

NOTE: G6 cannot charge at temperatures below 0°C (32°F) or above 45°C (113°F).

For information on charging G6, contact *Customer Care*.









4 LOW URGENCY NOTIFICATIONS

Low urgency notifications are used to communicate events that require your attention. A low urgency notification includes yellow flashing lights, sound, vibration (if enabled), and an on-screen message specific to the event.

NOTE: Non-gas related low urgency notification lights, sound, and vibration automatically mute after two minutes. Gas related low urgency notifications repeat until they are acknowledged or resolved.

Low urgency notifications are local to your device. Event data related to low urgency notifications is uploaded to Blackline Live during the scheduled communication interval for your device.

4.1 ACKNOWLEDGING LOW URGENCY NOTIFICATIONS

Low urgency notifications are activated when G6 requires your attention.

NOTE: To allow you to read and understand low urgency notifications, and to avoid accidentally muting the notification, there is a 2-second delay on your ability to acknowledge full screen notifications.

To acknowledge and mute a low urgency notification:

1. Select $\underbrace{\mathfrak{N}}$ by pressing the center button.

If G6 is within compliance (e.g., a bump test or calibration is due, but not overdue) and free of any gas related abnormalities, low battery warnings, or device errors, G6's Home screen will have an OK status (green).

If G6 is not in compliance (e.g., a bump test or calibration is overdue), or if gas related abnormalities, low battery warnings, or device errors are active, G6's Home screen will reflect the notification status.

2. To ensure G6 continues to operate correctly, take the action indicated by the device to address the notification.





4.2 LOW URGENCY NOTIFICATION TYPES

Low urgency notifications are:

- Device error
- Low gas
- Sensor under limit (UL)

Device error

The device error notification is activated when G6 detects a component (sensor, hardware, firmware, communication, UI) that is not operating correctly.

When you acknowledge the notification, G6's Home screen and banner reflect the error status.

IMPORTANT: If G6 has a device error that directly affects its ability to display data, then the screen impacted will turn orange and display three dashes (---) as the reading.

In the example shown, the device is displaying a sensor reading failure where there is currently no historical/logged peak value and future values cannot be logged and STEL cannot be calculated.

For assistance troubleshooting device errors, contact your distributor or Blackline Safety *Customer Care*.







Low gas

The low gas notification is activated when G6 detects a low gas event.

When you acknowledge the notification, G6's Home screen and banner will reflect the low gas status until the low gas event is resolved.

NOTE: The device's yellow light pattern will persist after you acknowledge/mute the low gas notification. If the muted low gas event conditions persist past 120 seconds, the low gas notification will retrigger with lights, sounds, and vibration.

Following the low gas notification, the logged peak gas value of the low gas event is displayed on the Gas options screen.

The screen will show the peak value recorded and the time it occurred until a new peak is reached, the peak value is manually reset, or the peak value automatically resets.

For more information on viewing and resetting gas readings, refer to *Viewing and Resetting Gas Readings*.







Sensor under limit (UL)

The sensor under limit (UL) notification is activated when G6 detects an UL gas event.

When you acknowledge the notification, G6's Home screen, banner and yellow light pattern will reflect the UL status.

If the muted UL event conditions persist past 120 seconds, the low gas notification will retrigger.

IMPORTANT: Following a UL notification, no peak is logged because the UL event type is closely related to a device or sensor error.

To resolve the UL event, Blackline Safety recommends that you calibrate G6. For more information, refer to *Calibrating G6*.

5 HIGH URGENCY NOTIFICATIONS

High urgency notifications communicate events that require your immediate attention and action. A G6 high urgency notification includes red flashing lights, sound, vibration, and an on-screen message specific to the event.

For all high urgency notifications, G6 will immediately connect to Blackline Live and if configured, send an email or SMS message to the notification profile identified contacts in Blackline Live.

If connectivity is unavailable, event data is stored and uploaded to Blackline Live during the next scheduled synchronization for your device.

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NOTE: Email and SMS message notifications are configured in Blackline Live. For more information, contact your Blackline Live administrator.







5.1 ACKNOWLEDGING A HIGH URGENCY NOTIFICATION

When you receive a high urgency notification:

- 1. Immediately evacuate the area and follow your emergency safety protocol.
- 2. Once you are in a safe location, read the information on G6's screen.
- 3. Acknowledge and mute the notification by pressing the center button. This does not cancel your device's connection to Blackline Live.

NOTE: To allow you to read and understand high urgency notifications, there is a 2-second delay on your ability to acknowledge full screen notifications.

5.2 HIGH URGENCY NOTIFICATION TYPES

High urgency notifications include:

- High gas
- Sensor over limit (OL)
- Short term exposure limit (STEL)

High gas

The high gas notification is activated when G6 detects gas levels above the high gas concentration threshold configured by your Blackline Live administrator.

NOTE: A G6 with an O₂ sensor will trigger high gas notifications in both oxygen-deficient and oxygen-enriched environments.

When you acknowledge the high urgency notification, G6's Home screen and banner will reflect the high gas status until the gas conditions dissipate and the high gas event is resolved.

The device's red light pattern will persist after you acknowledge/mute the notification. If muted high gas event conditions persist past 60 seconds, the high gas notification will retrigger with lights, sound, and vibration.





Following the high gas notification, the logged peak value of the high gas event is displayed on the Gas options screen.

The screen will show the peak value recorded until a new peak is reached, the peak value is manually reset, or the peak value automatically resets.

For more information on viewing and manually resetting gas readings, refer to *Viewing and Resetting Gas Readings*.

Sensor over limit (OL)

The sensor over limit (OL) notification is activated when your G6 detects that the gas reading has exceeded the range of its sensor.

When you acknowledge the high urgency notification, G6's Home screen and banner will reflect the OL status until the OL event is resolved.

The device's red light pattern will persist after you acknowledge/mute the notification. If muted OL event conditions persist past 60 seconds, the OL notification will retrigger with lights, sound, and vibration.

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Following the OL gas notification, the logged peak value of the OL gas event is displayed on the Gas options screen.

The screen will show the peak value recorded until a new peak is reached, the peak value is manually reset, or the peak value automatically resets.

For more information on viewing and resetting gas readings, refer to *Viewing and Resetting Gas Readings*.



Short term exposure limit (STEL)

The sensor short term exposure limit (STEL) notification is activated when G6 detects you have reached the STEL threshold configured by your safety supervisor.

If a STEL notification is activated, immediately evacuate the area and follow your emergency safety protocol. Once you are in a safe location, read the information on G6's screen.

When you acknowledge the high urgency notification, G6's Home screen and banner will reflect the STEL status until the gas conditions dissipate and the STEL event is resolved.

The device's red light pattern will persist after you acknowledge/mute the notification. If muted event conditions persist past 60 seconds, the STEL notification will retrigger with lights, sound, and vibration.





Following the STEL gas notification, the notification remains active until the STEL value drops below the configured time and concentration setpoints, or the STEL value is manually reset.

NOTE: You can reset the STEL while your device is experiencing a high urgency STEL notification and the STEL notification will clear. However, if gas is still present, the corresponding high or low gas notification will remain active.

For more information on viewing and resetting gas readings, refer to *Viewing and Resetting Gas Readings*.

6 GAS DETECTION

6.1 VIEWING AND RESETTING GAS READINGS

Use the Gas options feature to view and reset the following gas readings for your device:

• Peak gas reading

NOTE: If they are unchanged for 24 hours, G6's peak gas readings automatically reset.

• Short term exposure limit (STEL) reading

NOTE: STEL is applicable to H_2S , CO, or SO_2 devices only. STEL is not applicable to O_2 devices.

To view and manually reset the peak gas reading:

- 1. From the Home screen, select 🗰 by pressing the center button.
- 2. Using the navigation buttons, scroll through the Global Navigation menu and select **Gas options** by pressing the center button (





The Gas options screen opens, displaying the most recent peak reading and STEL reading recorded by G6.

NOTE: For O₂ devices, the peak enrichment and peak depletion gas readings are displayed.

NOTE: Gas readings above the sensor maximum result in an over limit (OL) reading.

- 3. To reset the peak reading, select → by pressing the right button.
- 4. Using the navigation buttons, scroll through the menu and select **Reset peak** by pressing the center button (✓).

The Reset peak screen opens, displaying:

- Most recently logged peak reading
- Low/high urgency gas setpoints
- For H₂S, CO, or SO₂ devices: To reset the peak gas value to zero, select → by pressing the right button.

NOTE: To cancel the procedure and exit at any time, select by pressing the left button.

G6 resets the peak gas value.











6. For O₂ devices: To reset the peak enrichment and depletion values to zero, select → by pressing the right button.

NOTE: Scroll between the peak enrichment and depletion readings by pressing the center button (

G6 resets the peak enrichment and depletion values to zero.

7. Once the value is successfully reset, select ✓ by pressing the right button to return to the Gas options screen.

To view and manually reset STEL reading:

- 1. From the Home screen, select \blacksquare by pressing the center button.
- 2. Using the navigation buttons, scroll through the Global Navigation menu and select **Gas options** by pressing the center button (
- 3. To reset the STEL reading, select \Rightarrow by pressing the right button.









4. Using the navigation buttons, select **Reset STEL** by pressing the center button (✓).

The STEL screen opens, displaying:

- Current STEL reading
- STEL rolling average interval
- STEL setpoint
- 5. To reset the STEL value to zero, press the 🗹 button.

NOTE: To cancel the procedure and exit at any time, select by pressing the left button.

6. Once the value is successfully reset, select \checkmark by pressing the right button to return to the Gas options screen.

6.2 BUMP TESTING G6

If configured for your device, bump testing verifies that your device's gas sensors and notification indicators (lights, sound, and vibration) are functioning correctly. During a bump test, you apply a known concentration and amount of gas to confirm the sensor will trigger a notification due to the gas exposure.

Your bump test schedule should be informed by your company's safety policy and is configurable by your Blackline Live administrator.

G6 automatically communicates bump test data to Blackline Live at the device's next scheduled









synchronization and will remind you when a bump test is overdue.

For more information on G6 bump testing notifications, refer to Operational Notifications.

To manually bump test G6, you will need a calibration cap (ACC-G6-CAL) and tube (ACC-G6-T2). Alternatively, you can bump test using G6 Dock.

For more information on bump testing with G6 Dock, see the *G6 Dock Technical User Manual* on the <u>Blackline Support</u> site.

 WARNING: Only perform bump tests in a known clean environment. G6 will not monitor for environmental gas during a bump test.

To manually bump test G6 using a calibration cap and tube:

- 1. Attach the tubing to the calibration cap.
- 2. Ensure the other end of the tubing is attached to a fixed flow regulator on the gas tank.

IMPORTANT: Do not turn on the gas cylinder until G6 indicates you should do so.

- 3. From the Home screen, select 🗰 by pressing the center button.
- 4. Using the navigation buttons, scroll through the Global Navigation menu and select **Compliance** by pressing the center button (

The Compliance screen opens, displaying information about when your device's next bump test and calibration are due.

5. To access the available **Compliance** procedures, select → by pressing the right button.

The available Compliance procedures display.





Using the navigation buttons, scroll to and select Bump test by pressing the center button (✓).

The Bump test screen opens.

7. To start the bump test, select ✓ by pressing the right button.

NOTE: To cancel the bump test and exit the workflow at any time, select \checkmark by pressing the left button.

G6 performs a hardware self test of your device's lights, sound, and vibration.

8. Attach the calibration cap to G6, then turn on the gas.

Your device automatically detects the gas and starts the bump test.











Bump test complete Turn off gas and remove cap

~

- 9. Once the bump test is successfully completed, turn off the gas, then disconnect the calibration cap from your G6.
- 10. Select \checkmark by pressing the right button.

G6 stays in the bump test maintenance state while any residual gas clears.

IMPORTANT: If you cancel the bump test or if the bump test fails, you must turn off the gas and allow any excess gas to clear prior to disconnecting your device.

If the bump test fails, the device will update to a bump test overdue status.

If the bump test is cancelled, the device will remain in the status it was prior to the cancelled bump test.

IMPORTANT: If G6 is experiencing a sensor error, you will not be able to perform a bump test until the sensor error is resolved.

If you see a bump test fail message on your LCD screen, try the bump test again. If the error persists, please contact Blackline Safety *Customer Care*.







6.3 CALIBRATING G6

If configured for your device, you can manually calibrate your gas sensor by applying a known concentration of gas for a set amount of time.

This procedure ensures the gas sensor can accurately detect gas levels throughout its operating life. The calibration schedule should be based on your company's safety policy.

For more information on G6 calibration notifications, refer to *Operational Notifications*.

To manually calibrate G6, you will need a calibration cap (ACC-G6-CAL) and tube (ACC-G6-T2). Alternatively, you can calibrate using G6 Dock.



For more information on calibrating your device with G6 Dock, see the *G6 Dock Technical User Manual* on the <u>Blackline Support</u> site.

▲ WARNING: Only perform calibrations in a known clean environment. G6 will not monitor for environmental gas during calibration.

To manually calibrate G6 using a calibration cap and tube:

- 1. Attach the tubing to the calibration cap.
- 2. Ensure the other end of the tubing is attached to a fixed flow regulator on the gas tank.

IMPORTANT: Do not turn open the gas cylinder until G6 instructs you to.

- 3. From the Home screen, select 🖽 by pressing the center button.
- 4. Using the navigation buttons, scroll through the Global Navigation menu and select **Compliance** by pressing the center button (✓).



The Compliance screen opens, displaying information about when your device's next bump test and calibration are due.

5. To access the available Compliance procedures, select → by pressing the right button.

The available Compliance procedures display.

 Using the navigation buttons, scroll through the procedure options and select Calibration by pressing the center button (✓).

The Calibration screen opens.

NOTE: To cancel the calibration and exit the workflow, at any time, select \checkmark by pressing the left button.

7. To start the calibration workflow, select \checkmark by pressing the right button.

G6 performs a hardware self test of your device's lights, sound, and vibration.

G6 zeros the sensor before calibration starts.











8. Attach the calibration cap to G6, then turn on the gas.

G6 automatically detects the gas and starts the calibration.

- 9. Once the calibration is successfully completed, turn off the gas, then disconnect the cap from your G6.
- 10. Select 🗹 by pressing the right button.

G6 stays in the calibration maintenance state while any residual gas clears.







IMPORTANT: If you cancel the calibration or if the calibration fails, you must turn off the gas and allow any excess gas to clear prior to disconnecting your device.

If the calibration fails, the device will update to a calibration overdue status.

If the calibration is cancelled, the device will remain in the status it was prior to the cancelled calibration.

IMPORTANT: If G6 is experiencing a sensor error, you will not be able to perform a calibration until the sensor error is resolved.

Contact your organization's safety professional or Blackline Safety *Customer Care* for assistance troubleshooting your device.

6.4 ZEROING G6

If configured for your device, you can manually zero your sensors to reset the baseline if G6 is not reading zero and you know you are in an atmosphere with no gas.

IMPORTANT: If G6's baseline appears to have shifted, it is best to calibrate your sensors. If you are unable to perform a calibration, zero your device.

NOTE: The baseline reading for oxygen (O₂) is 20.9.





▲ WARNING: Only zero G6 gas sensors in a known clean environment.

To manually zero G6:

- 1. From the Home screen, select \blacksquare by pressing the center button.
- 2. Using the navigation buttons, scroll through the Global Navigation menu and select **Compliance** by pressing the center button (

The Compliance screen opens, displaying information about when your device's next bump test and calibration are due.

3. To access the available Compliance procedures, select → by pressing the right button.

The available Compliance procedures display.

- 4. Using the navigation buttons, select **Zero sensor** by pressing the center button (✓).
- 5. To start the zero workflow, select ✓ by pressing the right button.

NOTE: To cancel and exit the workflow, select \times by pressing the left button.

G6 zeros the sensor.











6. Once the zeroing has successfully completed, select ✓ by pressing the right button to return to the Compliance screen.

IMPORTANT: If the zero fails, acknowledge the event to exit the current workflow and retry the operation.

Contact your organization's safety professional or Blackline Safety *Customer Care* for assistance troubleshooting your device.

NOTE: If G6 is currently experiencing a sensor error alarm event, you will be unable to zero your device. Select to exit the workflow.

Contact your organization's safety professional or Blackline Safety *Customer Care* for assistance troubleshooting your device.





7 FEATURES

7.1 FIND MY G6

Your Blackline Live administrator can use Find my G6 to locate missing devices. After the regularly scheduled synchronization with Blackline Live, devices with this feature toggled on communicate their locations to Blackline Live every 30 minutes for 2.5 hours.

For detailed information on Find my G6, refer to the *Blackline Live Technical User Manual* on the <u>Blackline Support</u> site.

8 DEVICE SETTINGS

8.1 ACCESSING DEVICE SETTINGS FOR G6

The G6 Device settings menu allows you to access device information (read only), overwrite configuration profile defaults (clock, language), and perform advanced operations.

To access the Device settings menu:

1. Press and hold the left push button for 5 seconds.

The Device settings menu opens.

IMPORTANT: The Device settings menu cannot be opened if there is an active unmuted notification on your device. Once you mute the notification, you will be able to access the menu.

← Exit m	enu	
Langu	ages	
Gas in	fo	
Device	e info	
	\checkmark	▼

8.2 LANGUAGES MENU

Use the Languages menu to view and update your device's language settings. Available languages include:

- English
- Français
- Español
- Deutsch

- Italiano
- Nederlands
- Português

To view and update your device's language:

 Using the navigation buttons, scroll through the Device settings menu and select Languages by pressing the center button (✓).

The Languages menu opens, displaying your device's available language settings.



NOTE: Your device's active language is flagged with a check mark.

- 2. Using the navigation buttons, scroll through the Languages options and select a new primary language for your device by pressing the center button (✓).
- 3. To return to the Device settings menu, scroll to **Back** and select it by pressing the center button (✓).

8.3 GAS INFO MENU

Use the Gas info menu to view your device's gas settings, including:

O₂ Devices

- Gas sensor (O₂)
- High enrichment setpoint (%vol)
- Low enrichment setpoint (%vol)
- Baseline (%vol)
- Low depletion (%vol)
- High depletion (%vol)
- Peak enrichment (%vol)
- Peak depletion (%vol)
- Last bump test (date)
- Last calibration (date)
- Calibration gas concentration (from your device's configuration profile) (%vol)

H₂S, SO₂, CO Devices

- Gas sensor (H₂S, SO₂, or CO)
- High gas setpoint (ppm)
- Low gas setpoint (ppm)
- Peak gas reading (ppm)
- STEL calculation (ppm/15 min)
- Last bump test (date)
- Last calibration (date)
- Calibration gas concentration (from your device's configuration profile) (ppm)

NOTE: G6 setpoints are configured in Blackline Live. G6's default high and low setpoint ranges are described in Table 8-1. For more information on configuring high and low gas setpoints, contact your Blackline Live administrator.

Gas	Default Setpoint Range	Increments
H ₂ S	0.5 – 50 ppm	0.1 ppm
SO ₂	0.5 – 100 ppm	0.1 ppm
СО	5 – 500 ppm	1 ppm
O ₂	0.1 – 25 %vol	0.1 %vol

Table 8-1: G6 default gas setpoint ranges



G6 gas sensor display ranges are from 0 ppm/%vol to the sensor maximum. Gas readings above sensor maximums result in over limit (OL) values. For detailed information about G6 gas sensor ranges, refer to *Gas Sensor Specifications*.

To view gas information:

 Using the navigation buttons, scroll through the Device settings menu and select Gas info by pressing the center button ().

The Gas info screen opens.

- 2. Use the navigation buttons to scroll through the Gas info screen.
- 3. To return to the Device settings menu, select ← by pressing the center button.

8.4 DEVICE INFO MENU

Use the Device info menu to view your device's hardware and activation records, including:

- Unit ID
- Activation code
- Firmware version and build
- Region

The device information menu provides advanced information that can be used for quickly troubleshooting your device.





To view device information:

 Using the navigation buttons, scroll through the Device settings menu and select **Device info** by pressing the center button (

The Device info screen opens, displaying your device's settings.

- 2. Use the navigation buttons to scroll through the Device info screen.
- 3. To return to the Device settings menu, select 🗲 by pressing the center button.

8.5 COMMUNICATION INFO MENU

Use the Communication info menu to view information related to your device's cellular communications, including:

- Last sync date/time (UTC)
- Status (last sync)
- Signal level (last sync)
- Cell provider (last sync)
- Network (last sync)
- Next sync date/time (UTC)

To view Communication information:

 Using the navigation buttons, scroll through the Device settings menu and select Communication info by pressing the center button (

The Communication info screen opens, displaying your device's communication settings







- 2. Use the navigation buttons to scroll through the device info screen.
- 3. To return to the Device settings menu, select ← by pressing the center button.

8.6 GPS LOCATION INFO MENU

Use the GPS location info menu to view information related to your device's recorded GPS location, including:

- Time (UTC)
- Lat
- Long
- Satellites
- SNR (dB)

To view GPS location information:

1. Using the navigation buttons, scroll through the Device settings menu and select **GPS location info** by pressing the center button (

The GPS location info screen opens.

2. To return to the Device settings menu, select pressing the center button.







8.7 MANUALLY SYNC DEVICE MENU

Use the Manually sync device menu to manually upload your device's event data to Blackline Live and to trigger configuration updates and firmware downloads for your device without having to wait until the next scheduled synchronization.

To manually synchronize your device:

- Using the navigation buttons, scroll through the Device settings menu and select Manually sync device by pressing the center button (
- 2. To manually synchronize your device, select ✓ by pressing the right button.

NOTE: To cancel the synchronization and exit the workflow at any time, select \checkmark by pressing the left button.

3. Once the update is complete, select ✓ by pressing the right button to return to the Device settings menu.







8.8 UPDATE DEVICE MENU

Use the Update device menu to manually verify and update your device's firmware. For detailed information on firmware download and installation for G6, see *Firmware Updates*.

To update the firmware version:

 Using the navigation buttons, scroll through the Device settings menu and select Update device by pressing the center button ().

G6 indicates whether your device's firmware is up to date.

If your device is up to date, to return to the Device settings menu, select S by pressing the center button.

2. If a firmware update is available, start the firmware update by selecting by pressing the right button (✓).

NOTE: To cancel the firmware update and exit the workflow, select \checkmark by pressing the left button.









G6 updates the firmware and then restarts.

Following the restart, your G6 lights, sound, and vibration notify you that the device's start-up sequence is in progress.

G6 notifies you when the firmware installation is complete.

8.9 REGULATORY LABELS MENU

Use the Regulatory labels menu to access regulatory certification information. This allows you to review that your device is compliant with your regional regulatory requirements including:

- FCC (USA)
- IC (Canada)
- UKCA (UK)
- CE (EU)

To view your device's regulatory labels:

 Using the navigation buttons, scroll through the Device settings menu and select **Regulatory labels** by pressing the center button (

The Regulatory labels screen for your region opens.

Use the navigation buttons to view the certification information associated with your device.





G6 update complete

To return to the Device settings menu, select \leftarrow by pressing the center button.



8.10 POWER OFF MENU

Use the Power off menu to shutdown your G6 in case you need to troubleshoot, ship, or repair the device.

To power off your device:

 Using the navigation buttons, scroll through the Device settings menu and select Power off by pressing the center button (✓).

The confirm power off screen opens.





2. To power off your device, select ✓ by pressing the right button.

NOTE: To cancel the shutdown, select \checkmark by pressing the left button.

9 MAINTENANCE

9.1 CHANGING THE G6 GAS SENSOR FILTER

G6's filter must be replaced when it becomes visibly soiled, or if bump test and calibrations fail repeatedly. You will need:

- Flathead screwdriver
- Replacement filter (ACC-G6-FILT10)

IMPORTANT: Always perform maintenance procedures in a clean, dust free environment. In addition, when handling G6, ensure that hands are free from any hand sanitizer or cleaning product. For more information, refer to <u>Device Cleaning</u>.

To replace the G6 gas sensor filter:

 Using a flathead screwdriver, gently detach the gas sensor faceplate by inserting the screwdriver head between the faceplate and the bottom edge of G6 and twisting the screwdriver to loosen the sensor cap.



2. Remove and set aside the sensor cap.

3. Remove and discard the old filter, making sure to avoid contact with the gas sensor surface.

4. Place the new filter over the sensor, ensuring that the filter gasket is facing outwards from the device and correctly aligned within the gas sensor socket.

5. Reattach the gas sensor cap to the G6, inserting the cap brackets at an angle with the top of G6 and pressing the bottom of the cap until it clicks into place.









9.2 CLEANING G6

To clean G6, wipe down with a damp cloth. Do not use pressure spray or cleaning solvents. In addition, when handling G6, ensure that hands are free from any hand sanitizer or cleaning product. For more information, refer to <u>Device Cleaning</u>.

When not in use, G6 should be stored in a dry and dust-free environment.

10 FIRMWARE UPDATES

To offer new features, Blackline Safety releases firmware updates at regularly scheduled intervals. Firmware updates have two steps:

- Download
- Installation

Specific information about new updates can be found on the <u>Blackline Support</u> site's Notifications page. If you have any questions, please contact Blackline Safety *Customer Care*.

10.1 DOWNLOAD

If a new version of firmware is available for download, G6 downloads it during the regular daily scheduled synchronization. This operation takes place automatically and cannot be declined by the device user. G6 will be ready to install the firmware update when the download is complete.

10.2 INSTALLATION

Once the device has downloaded a new version of firmware, it must be installed on your G6. Installation of a new version of firmware that has been downloaded onto the device can take place either manually or automatically.

The firmware install process requires that the device be restarted to commit and run the new version of firmware. Once completed, G6 will continue to monitor as usual.

▲ WARNING: G6 will NOT monitor for gas during the firmware update installation process. Updates should only take place while your device is in a safe, gas-free environment.

10.2.1 AUTOMATIC FIRMWARE INSTALLATION

Automatic firmware installs take place exclusively when a G6 is removed from G6 Dock or when a manual bump test, manual calibration, or manual sensor zero are performed, as the device is assumed to be in gas-free environment where maintenance operations can be performed.

IMPORTANT: While docked, G6 has a continuous network connection. After a docked bump test or calibration, G6 automatically verifies whether a new version of firmware has been downloaded onto the device. If so, G6 initiates the firmware install process after the device is removed from G6 Dock.

10.2.2 MANUAL FIRMWARE INSTALLATION

You can manually verify and update your firmware using your device's Device settings menu. Use the manual update procedure when you are out of range of a G6 Dock and need to install a new firmware version immediately, or do not have a dock for automatic firmware installs.

NOTE: Manual installs are only available if a new version of firmware has been downloaded onto your device, and the new version of firmware has not already been automatically installed.

For more information on manually updating your device, refer to Update Device Menu.

11 SUPPORT

11.1 LEARN MORE

Visit <u>support.blacklinesafety.com</u> to find support and training materials for G6.

11.2 CUSTOMER CARE

For technical support, contact our Customer Care team.

North America (24 hours) Toll Free: 1-877-869-7212 | <u>support@blacklinesafety.com</u>

United Kingdom (8am-5pm GMT) +44 1787 222684 | <u>eusupport@blacklinesafety.com</u>

International (24 hours) +1-403-451-0327 | support@blacklinesafety.com

12 SPECIFICATIONS

12.1 DETAILED SPECIFICATIONS

Standard features

Single-gas monitoring - CO, H₂S, O₂, or SO₂ Direct-to-cloud connectivity Over-the-air configurations Automatic over-the-air updates Integrated GPS location technology Find My G6 Up to 1-year battery life Rechargeable battery Automatic bump tests and calibrations through G6 Dock

Standard safety features

Device location, gas event readings, bump and calibration data, and alarms automatically uploaded daily High gas notification Low gas notification Short-term exposure limit (STEL) notification Bump test and calibration notification Bump test and calibration failure notification

Size & weight

Size: 71 mm x 110 mm x 37 mm (2.8" x 4.3" x 1.5") Weight: 146 g (5.2 oz)

User interface

240 x 320 pixel graphical, high contrast, 6-bit color liquid crystal display Menu system and power-on driven by three-button keypad Multi-language support: EN, FR, ES, DE, IT, NL, PT

User notification

Visual: Color display and multi-color lights on top and side Sensory: Vibrating Audible: ~95 dB @ 30 cm (11.8")

Power & battery

Rechargeable Li-ion battery: 1200 mAh Battery life: Up to 1 year at 20°C (68°F) under normal usage Charge time: 4 hours

Approvals

SAR, RoHS, CE, RCM Contains FCC ID: W77BLG6C1, IC: 8255A-BLG6C1 FCC ID: XF6-B001P4V2P1, IC: 8407A-B001P4V2P1 Canada & USA: Class I Division 1 Group A,B,C,D T4; Class I Zone 0 AEx da ia IIC T4; Ex da ia IIC T4 Ga IECEx: Ex da ia IIC T4 Ga UKCA: Ex ia IIC T4 Ga

Location technology

GPS Radio: 48-channel high sensitivity Assisted-GPS: Yes GPS Accuracy: ~5 m (16 ft) outdoors Location update frequency: During high urgency events and once per day

Cellular Communication

LTE-M and NB-IoT

Environmental

Storage temperature: -30°C to 60°C (-22°F to 140°F) Operating temperature: -20°C to 55°C (-4°F to 131°F) Charging temperature: 0°C to 45°C (32°F to 113°F) Ingress Protection: Designed to meet IP67

Warranty

Four-year limited warranty

Blackline Live web application

Cloud-hosted safety monitoring web application is customizable for every customer requirement.

Includes compliance dashboard, map, user roles, device configurations, notification setups, and essential reporting.

12.2 GAS SENSOR SPECIFICATIONS

Gas	Sensor type	Range	Resolution
CARBON MONOXIDE (CO)	Electrochemical	0–500 ppm	1 ppm
HYDROGEN SULFIDE (H ₂ S)	Electrochemical	0–100 ppm	0.1 ppm
OXYGEN (O ₂)	Electrochemical	0–25 %vol	0.1 %vol
SULFUR DIOXIDE (SO ₂)	Electrochemical	0–100 ppm	0.1 ppm

13 LEGAL NOTICES AND CERTIFICATIONS

13.1 LEGAL NOTICES

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The Blackline, Alert, Locate, Respond, families of related marks, images, and symbols, including Blackline, G6, G7, G7c, G7x, LiveResponse, Loner, Loner IS, Loner IS+, Loner M6, Loner M6i, Loner Mobile, Loner 900, and SureSafe are the exclusive properties and trademarks of Blackline Safety Corp. All other brands, product names, company names, trademarks and service marks are the properties of their respective owners.

Warranty

G6 is warranted against defects in materials and workmanship for up to four years from the date of purchase. For further details regarding your Blackline warranty, please refer to your terms and conditions of service.

FCC Compliance

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 further assistance.

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.

Note: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment

RF exposure was tested with the supplied belt clip. Use of third-party accessories may result in non-compliant exposure.

Industry Canada Compliance

This device complies with Industry Canada 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

RF exposure was tested with the supplied belt clip. Use of third-party accessories may result in non-compliant exposure.

Notification d'Industrie Canada

Ce dispositif est conforme au(x) format(s) RSS libre(s) d'Industrie Canada. Son fonctionnement est assujetti aux deux conditions suivantes: (1) Cet appareil ne peut causer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un mauvais fonctionnement du dispositive.

L'exposition RF a été testée avec le clip de ceinture fourni. L'utilisation d'accessoires tiers peut entraîner une exposition non conforme.

Warning

Do not operate Blackline Safety products where you are not able to safely operate your mobile/cellular phone.

Electrical equipment may be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

Do not operate or store Blackline products outside their specified operating or storage temperatures. Consult the specifications section for more information.

Blackline products contain a non-replaceable internal lithium-ion battery pack. Seek advice from your local electronics recycling authority regarding the disposal of your device. Do not dispose Blackline products in your household trash.

13.2 INTRINSICALLY SAFE CERTIFICATION

Intrinsically Safe

This device is certified Intrinsically Safe for use in Class I Division 1 Groups A,B,C,D T4; Ex ia IIC T4 Ga; Class I Zone 0 AEx ia Group IIC T4 Ga hazardous (classified) locations.

E529689 IECEX UL 22.0077 UL 22 ATEX 2862 UL22UKEX2659



Cl I Div 1 Gr A,B,C,D T4 Cl I Zn 0 AEx ia IIC T4 Ga Ex ia IIC T4 Ga

-20°C ≤ Ta ≤ +55°C

WARNING: Charge only in a nonhazardous location.

The equipment shall only be charged when in a nonhazardous area using a charger specifically supplied for use with the unit or approved as Class 2 circuit according to Canadian Electrical Code (CEC), Part I, C22.1 or National Electrical Code (NEC), NFPA-70, or as a Limited Power Supply (LPS) according to IEC 60950-1 or IEC 62368 or as a Limited-Energy circuit according to IEC 61010-1 or approved to an equivalent IEC standard. The maximum voltage and current from the charger shall not exceed 5.625Vdc and 2A respectively.

Sécurité intrinsèque

Cet appareil est certifié à sécurité intrinsèque pour l'usage en classe I division 1 groupe A,B,C,D T4; Ex ia IIC T4 Ga; classe I zone 0 AEx ia groupe IIC T4 Ga dans les lieux classés comme dangereux.

Standards:

CAN/CSA C22.2 No. 60079-0: 2019 CAN/CSA C22.2 No. 60079-11: 2014 UL 913, Eighth Edition UL 60079-0: Seventh Edition UL 60079-11: Sixth Edition EN 60079-0: 2018 EN 60079-11: 2012 IEC 60079-0: 2019 7th Edition IEC 60079-11: 2011 6th Edition

AVERTISSEMENT: Chargez uniquement dans un en- droit non dangereux.

L'équipement ne doit être chargé que lorsqu'il se trouve dans une zone non dangereuse à l'aide d'un chargeur spécifiquement fourni pour être utilisé avec l'appareil ou approuvé comme circuit de classe 2 conformément au Code canadien de l'électricité (CEC), partie I, C22.1 ou au Code national de l'électricité (NEC), NFPA-70, ou en tant qu'alimentation électrique limitée (LPS) selon IEC 60950-1 ou IEC 62368 ou en tant que circuit à énergie limitée selon IEC 61010-1 ou une norme IEC équivalente. La tension et le courant maximum du chargeur ne doivent pas dépasser respectivement 5,625 Vdc et 2 A.

Blackline Safety | Unit 100, 803 24 Ave SE | T2G 1P5 | Canada