

blacklinesafety

G7

Technical User Manual

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OVERVIEW



THE WORLD'S FIRST EVERYTHING DETECTOR

What is G7 Insight?

G7 Insight is a simple solution that bundles industry-leading gas detection with automated compliance and business analytics tools. For the first time ever, the days of manually collecting data from the field, reviewing spreadsheets and compiling reports are behind you.

With just a few minutes of connectivity per day, all data automatically recorded by G7 devices in the field is uploaded to the Blackline Safety Network for automatic compilation and report generation.

What are real-time features?

Real-time safety monitoring leverages location technology, communications and live data to provide complete transparency and control over your safety program. Real-time features utilize G7 devices' cellular or satellite connectivity, connecting people in the field with live monitoring teams in real time — ensuring no call for help will ever go unanswered again.

In the event of a safety incident or gas exposure, monitoring personnel can see what has happened, and communicate with workers directly via two-way voice calling or text messaging through their G7 device.

BLACKLINE SAFETY NETWORK

How am I connected?

The Blackline Safety Network is a cloud-hosted system comprised of 2G/3G cellular networks, satellite networks, our Blackline Live™ web portal application, your monitoring account and your G7.

G7 devices require an active service plan in order to connect to the Blackline Safety Network. Depending on your needs and requirements, various service plan options are available such as 24/7 safety monitoring by Blackline's Safety Operations Center and two-way voice communication. Contact your organization's safety professional for more information regarding the details of your service plan.

BLACKLINE LIVE WEB PORTAL

What is Blackline Live?

G7 utilizes the cloud-hosted Blackline Live web portal to monitor and manage all your workers and devices, as well as deliver reports and business analytics insights.

With Blackline Live's real-time alerting and live map with employee locations, you can quickly locate and respond to a worker in distress. Real-time alerts show the employees location on the map with the type of alert, enabling your team to efficiently send help.

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. Similarly, alert profiles are set up to determine what contacts should be notified in the event of an incident and what response protocol monitoring personnel will follow to ensure your team gets the help it needs.

Blackline Live keeps track of alert history, calibrations and bump tests, eliminating the need to manually retrieve data logs from the field.

Blackline Live allows you to tailor user access depending on employee roles: employee, supervisor, administrator and monitoring team. This ensures that everyone has access to the right tools to accommodate their role in a comprehensive monitoring program.

What is Blackline Analytics?

With Blackline Analytics, review data collected from your device fleet to make decisions, follow up with your team and ensure everything is running smoothly. Choose from a number of different reports and filters to explore your data.

Blackline Analytics is built directly into the Blackline Live portal, allowing anyone with login access to see their own organization's data, as well as client data. If users have only been given access to specific groups of devices, they will only see data attached to those particular devices.



G7 MODELS

What G7 model do I have?

There are two G7 models: G7c and G7x. The main difference between them is how they connect to the Blackline Safety Network.

If you are unsure of which G7 model you have, refer to the logo on the front of your G7.



G7c works anywhere with 2G/3G cellular coverage in over 200 countries to connect you directly to the Blackline Safety Network. Depending on your service plan, your G7c may have two-way voice capabilities.

G7x works in conjunction with Blackline's G7 Bridge — a portable satellite base station that keeps you connected in remote locations outside cellular coverage. G7x uses a 900 MHz radio to communicate with G7 Bridge up to 2km away. One G7 Bridge can link up to five G7x devices to the Blackline Safety Network through Iridium satellite or cellular data.

DEVICE COMPARISON

What features does my G7 have?

G7c and G7x are customized with one of four cartridge types. Cartridge selections include Standard, Single-gas, Multi-gas diffusion and Multi-gas pump cartridges. The following comparison chart summarizes the features of each cartridge.



	Standard	Single	Multi (diffusion)	Multi (pump)
Text messaging	●	●	●	●
Fall detection	●	●	●	●
No-motion detection	●	●	●	●
SOS alert	●	●	●	●
Check-in timer	●	●	●	●
Configuration modes		●	●	●
Receive voice calls*	●	●	●	●
Push-to-talk enabled*	●	●	●	●
Single gas detection		●		
Multi gas detection			●	●
Pump enabled				●
Low warning alarm for gas		●	●	●
Under limit alarm for gas		●	●	●
High alert for gas		●	●	●
STEL alert for gas		●	●	●
TWA alert for gas		●	●	●
Over limit alert for gas		●	●	●

*G7c devices only

WHAT'S IN THE BOX

Your G7 device comes with the following components:

- G7 personal safety monitoring device
- Pre-installed cartridge (Standard, Single-gas or Multi-gas cartridge)
- Getting started guide
- Optional real-time features guide
- Charging system
 - Removable charging clip
 - USB cable
 - USB power adapter
- Certification and support card

If you have a Single-gas or Multi-gas cartridge you will also receive:

- Single-gas or Multi-gas calibration cap (depending on your cartridge)
- Calibration gas tubing

HARDWARE DETAILS



INTERACTION

HOW IT WORKS

Interacting with G7 is easy with its high-visibility LCD display and three-button menu system.



OK button

Press OK to enter the main menu on the LCD screen and to confirm a menu selection.



Up and down arrow buttons

Press up or down to navigate the menu. Press and hold both simultaneously to mute a yellow warning alarm or red alert.



Latch pull

Pull down the latch to call for help when assistance is required.



Latch push button

Push the latch in to check in and tell your G7 that you are safe.

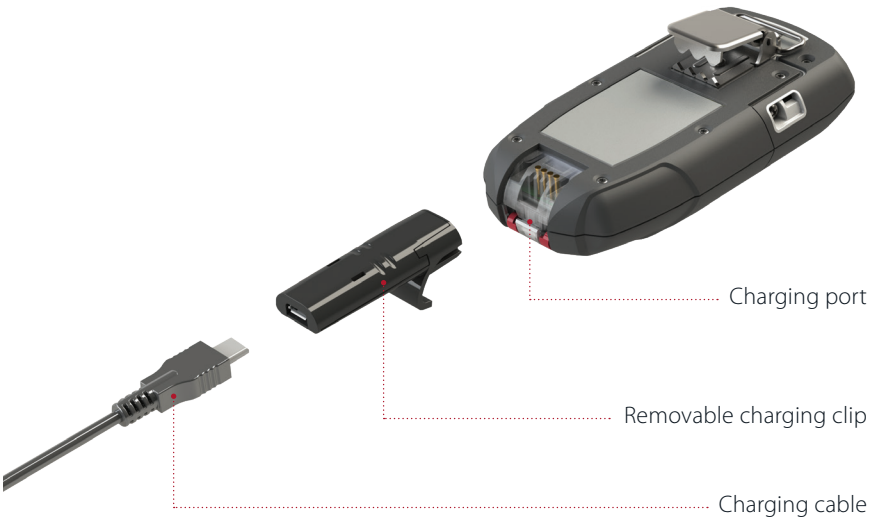
OPERATING

CHARGING

How do I charge my G7?

Insert the micro USB plug into the removable charging clip, then slide the clip onto the charging port at the bottom of your G7. A solid red light at the bottom of the device confirms your G7 is charging. The LCD screen will let you know when it is fully charged, which can take up to four hours.

Blackline recommends that you fully charge your device after every shift.



WEARING

Where do I wear my device?

G7 monitors you best when clipped to your belt or chest pocket.

POWER ON

How do I turn on my G7c?

Press and hold the power button, and wait for the blinking green connectivity light to turn solid. When connected, the green light will remain solid.

How do I turn on my G7x?

Press and hold the power button on your G7 Bridge to turn it on first, and wait for the blinking green connectivity light to turn solid. It takes approximately two minutes for G7 Bridge to connect to the Blackline Safety Network. When connected, the green light will remain solid.

Press and hold the power button on your G7x. Wait for the blinking green connectivity light to turn solid. When connected, the green light will remain solid.

NOTE: For best results, ensure your G7 Bridge is turned on before your G7x. If you are having difficulties connecting your G7x to G7 Bridge, please refer to your G7 Bridge manual.

POWER OFF

How do I turn off my G7c?

Press and hold the power button. The device will go into shutdown sequence, once all the lights and vibrations have stopped, you have been logged off from the Blackline Safety Network.

How do I turn off my G7x?

Press and hold the power button of your G7x. The device will go into shutdown sequence, sending your log off status to G7 Bridge.

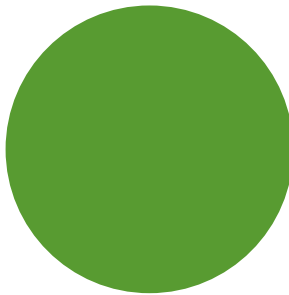
When suitably powered, G7 Bridge can remain on at all times. When G7 Bridge is off, all connected devices will no longer be monitored. Before powering down, ensure there are no other G7x devices connected. Once confirmed, press and hold the power button on the G7 Bridge. The device will go into shutdown sequence. Your safety is no longer being monitored.

NOTE: For more information, please refer to the G7 Bridge technical user manual.

CONNECTIVITY LIGHT

Are you connected to the Blackline Safety Network?

G7 lets you know your connection status.



Blinking green light

A blinking connectivity light indicates that your G7 is storing data. It is not currently connected to the network and will send data when the light is solid.

Solid green light

A solid connectivity light indicates that G7 is actively transmitting data and is connected to the Blackline Safety Network.

Sound and vibration

Configurable to sound an alarm if connection is lost after 5 minutes.

NOTE: If you are using real-time features, your safety is only monitored when the connectivity light is solid.

GAS DETECTION

Included with your G7 Single-gas or Multi-gas cartridge is a calibration cap and tubing for bump tests and calibrations. Alternatively, bump tests and calibrations can be completed using a G7 Dock. Only perform bump test and calibrations in a safe environment. For more information and instructions on bumping or calibrating with G7 Dock, refer to the G7 Dock technical user manual.

BUMP TEST

What is a bump test?

It is safe practice to regularly test gas sensors by applying the target gas. G7's bump test also tests the operation of light, sound and vibration indicators. The bump test schedule depends on your company's safety policy. G7 automatically communicates bump test data to the Blackline Safety Network, and will remind you when a bump test is overdue. The bump test schedule is configurable.

NOTE: To meet CSA LEL performance standard, you are required to bump test before each day's use. Blackline recommends you do not exceed 30 days without a bump test.

How do I bump test?

1. Attach tubing to the calibration cap
2. Ensure the other end of the tubing is attached to a fixed flow regulator on the gas tank
3. On your G7, press the OK button to enter the main menu
4. Use the arrow buttons to navigate to *gas options*, press OK
5. Use the arrow buttons to navigate to *bump test*, press OK
6. Press the up arrow to continue
7. G7 performs an automatic audio and visual assessment to test vibration and lights
8. You can individually choose which sensors to test. By default, G7 will test all sensors.
9. Attach the calibration cap to your device
10. G7 will begin to count down from 60. Apply the gas within this time window.
11. Turn gas off when prompted on your G7 screen
12. Press the OK button to complete bump test
13. G7 will let you know if the bump test has passed or failed, and when your next bump test is due
14. Remove the calibration cap and let your G7 sit until the readings stabilize and your G7 has returned to baseline

NOTE: If you see a bump test fail message on your LCD screen, try the calibration again. If the error persists, please contact our Customer Care team.



CALIBRATION

What is calibration?

Gas sensors periodically need to be calibrated 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 depends on your company's safety policy. Blackline recommends not exceeding 180 days without a calibration.

How do I calibrate?

1. Attach tubing to the calibration cap
2. Ensure the other end of the tubing is attached to a fixed flow regulator on the gas tank
3. On your G7, press the OK button to enter the main menu
4. Use the arrow buttons to navigate to *gas options*, press OK
5. Use the arrow buttons to navigate to *calibration*, press OK
6. Press the up arrow to continue
7. G7 performs an automatic audio and visual assessment to test vibration and lights
8. You can individually choose which sensors to test. By default, G7 will test all sensors.
9. Attach the calibration cap to your device
10. G7 will begin to count down from 60. Apply the gas within this time window and continue to apply gas for 2 minutes.
11. Turn gas off when prompted on your G7 screen
12. Press the OK button to complete calibration
13. G7 will let you know if the calibration has passed or failed, and when your next calibration is due
14. Remove the calibration cap and let your G7 sit until the readings stabilize and your G7 is calibrated

NOTE: If you see a calibration fail message on your LCD screen, try the calibration again. If the error persists, please contact our Customer Care team.

ZERO SENSORS

What is zeroing?

If G7 is not reading zero and you know you are in an atmosphere with no gas, your gas sensor readings may have shifted. If this happens, it is best to calibrate your sensors. If you are unable to preform a calibration, you can zero your sensors to reset the baseline.

G7 can be configured to automatically zero on start-up when you turn on your device in Blackline Live.

NOTE: The baseline reading for oxygen is 20.9.

How do I zero sensors?

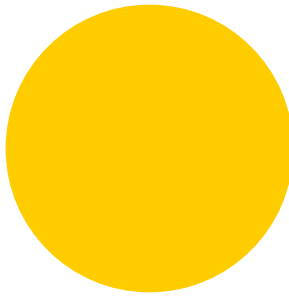
1. On your G7, press the OK button to open the main menu
2. Press the arrow buttons to navigate to *gas options*, press OK
3. Use the arrow buttons to navigate to *zero sensors*, press OK
4. Press the up arrow to begin zeroing. Do not apply any gas.
5. The LCD screen will let you know once zero is complete

NOTE: If you see a zero incomplete message on your LCD screen you may be in an environment with gas levels, or your cartridge may need replacement.

GAS DETECTION FEATURES

Once you have completed a bump test and calibration, G7 is ready to monitor and notify you of gas exposure. Gas detection alarms will notify you with either a yellow warning alarm or a red alert depending on the gas level measured. All settings are customizable in Blackline Live. Speak to your safety supervisor to learn about how your gas features are configured.

YELLOW WARNING ALARM GAS FEATURES



LOW WARNING ALARM FOR GAS

When does G7 trigger a low yellow warning alarm for gas?

When gas levels reach the low concentration threshold configured by your safety supervisor, G7 will inform you with a yellow warning alarm every two minutes until gas levels are reduced.

NOTE: A G7 with O₂ sensors will trigger low warning alarms in oxygen-deficient and oxygen-enriched atmospheres. An oxygen-deficient atmosphere poses a risk of insufficient oxygen for breathing. An oxygen-enriched atmosphere presents an increased risk of explosion.

UNDER LIMIT

When does G7 trigger an under limit yellow warning alarm?

If a gas sensor's baseline shifts, its reading will shift accordingly and become unreliable. When this happens, the presence of gas can still be measured, but cannot be converted into an accurate reading. G7 will inform you of such an event with a yellow warning alarm. A calibration will be required to ensure the sensors are accurately detecting gas levels. If you are unable to perform a calibration and are in a clean atmosphere, you can zero your sensors to reset the baseline.

SENSOR ERROR

When does G7 trigger a sensor error yellow warning alarm?

If a gas sensor stops working for any reason, G7 will inform you with a yellow warning alarm. An X on your LCD screen will indicate which sensor or sensors are generating the error message. Power off and restart your G7. If the sensor error warning persists, perform a calibration. If this does not correct the problem, you will need to replace your cartridge.

CALIBRATION

When does G7 trigger a calibration yellow warning alarm?

When gas sensors are due for a calibration, G7 will inform you with a yellow warning alarm.

BUMP TEST

When does G7 trigger a bump test yellow warning alarm?

When gas sensors are due for a bump test, G7 will inform you with a yellow warning alarm.

PUMP BLOCK

When does G7 trigger a pump block yellow warning alarm?

If your pump inlet is blocked, G7 will inform you with a yellow warning alarm.

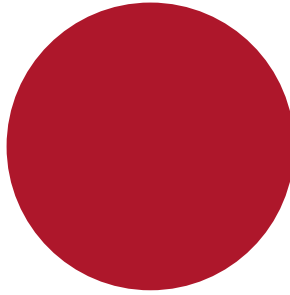
What do I do in the case of a yellow warning alarm?



Read your G7 screen. Press and hold the up and down arrow buttons at the same time to let your G7 know you have read the message.

Yellow warning alarms are between you and G7, and will not notify monitoring personnel if you are using real-time features.

RED ALERT GAS FEATURES



● ● ● ● ● ● ● **Rapid Blinking** ● ● ● ● ● ● ●

HIGH ALERT FOR GAS

When does G7 trigger a high alert for gas?

If a gas sensor detects gas levels above the high gas concentration threshold configured by your safety supervisor.

NOTE: A G7 with O₂ sensors will trigger red alerts in both oxygen-deficient and oxygen-enriched situations.

STEL (SHORT TERM EXPOSURE LIMIT) ALERT

When does G7 trigger a STEL alert?

If a gas sensor detects you have reached the short-term exposure limit configured by your safety supervisor. This limit is the gas concentration that you can be continuously exposed to for a 15-minute time frame without suffering adverse health effects.

TWA (TIME WEIGHTED AVERAGE) ALERT

When does G7 trigger a TWA alert?

If a toxic sensor detects you have exceeded the average allowable amount of gas during an eight-hour period.

NOTE: The two TWA measuring methods available for use on your G7 are: OSHA (United States Department of Labor Occupational Safety and Health Administration) or ACGIH (American Conference of Governmental Industrial Hygienists).

OSHA is defined as a rolling average of gas exposure accumulated over an eight-hour period of operation. If the worker is in the field longer, the most recent eight-hour cumulative value is used.

ACGIH is defined as the total accumulated average, from four to 16 hours as configured by your safety supervisor.

OL (OVER LIMIT) ALERT

When does G7 trigger an OL alert?

If a gas sensor detects an excessive amount of gas and can no longer give you an accurate reading.

What do I do in the case of a red alert?



Evacuate the area and follow your emergency safety protocol. Read the information on your G7 screen. Press and hold the up and down arrow buttons at the same time to mute the sound and vibration. The sound and vibration will return after one minute. This will continue until gas levels or averages have reduced or returned to acceptable concentrations.

For real-time users, red alerts are immediately communicated to monitoring personnel. Muting sound and vibration does not cancel the remote alert sent to monitoring personnel.

CONFIGURATION MODES

Configuration modes are customized in the G7 configuration profile on Blackline Live. Each profile supports up to a total of five 'modes'. These modes allow G7 to temporarily change its behavior for different situations, and can be turned on and off through G7's interface.

AVAILABLE MODES

Normal

This mode is the configuration you determine for everyday operation. G7 will operate using this mode as a default.

Pre-entry

Pre-entry mode is used before entering a space that could potentially contain dangerous gas. This mode can be used with or without a pump cartridge, which will actively draw surrounding air to its sensors and test gas levels.

SCBA

This mode is meant to be used when the device user is wearing a self-contained or supplied air breathing apparatus (SCBA/SABA) and is entering an area that is known to have high gas levels.

Leak check

Leak check mode can be used when checking for gas leaks in a particular area. This mode – like pre-entry mode – can be used with or without a pump cartridge.

High risk

This mode is unique in that it is meant for general high-risk situations, such as an evacuation or travelling through a dangerous area. Unlike the other modes, you will never be timed out and must exit it manually.

ENTERING A MODE

How do I enter a mode?

To use a mode, it must first be enabled in G7's configuration profile on Blackline Live. Entering a mode can be done from G7's main menu or main status screen.

To enter a mode from the modes menu:

1. Press OK to enter G7's main menu
2. Use the up and down arrows to navigate to *modes*
3. Press OK to enter the modes menu
4. Select the mode you wish to enter
5. Confirm that you want to enter the mode by selecting *yes*
6. G7's screen will invert and your information banner will display your current mode

To enter a mode from the main status screen:

1. Press the up or down arrow to open G7's secondary menu
2. Continue to press the up or down arrow until you reach your desired mode
3. Press OK to enter the mode
4. G7's screen will invert and your information banner will display your current mode

EXITING A MODE

How do I exit a mode?

When you'd like to return the device to normal operation, you will need to exit the configuration mode you are currently in. Exiting a mode can be done from G7's main menu or main status screen.

To exit from the modes menu:

1. Press OK to enter G7's main menu
2. Use the up and down arrows to navigate to *modes*
3. Press OK to enter the modes menu
4. Select *normal* mode
5. Confirm that you want to return to normal mode by selecting *yes*
6. G7 will return to normal function

To exit from the main status screen:

1. Press the up or down arrow to open G7's secondary menu
2. Press OK to exit the mode
3. G7 will return to normal function

What is a mode timeout?

Each configuration mode (excluding normal and high risk mode) has a timeout period. After this time period has elapsed, you will be asked if you would like to continue in this mode. If you select *yes*, your mode will be extended. If you select *no*, G7 will return to normal operation. If you do not make a selection within 30 seconds, G7 will automatically return to normal operation. If you have a check-in timer enabled, G7 will immediately ask you to check in.

CARTRIDGES

GAS CARTRIDGE REPLACEMENT PROGRAM

What do I do when I need a new gas cartridge?

If you have an uninterrupted service plan for your G7 gas cartridge, Blackline will replace expired cartridges for you free of charge. To inquire about or request new cartridges, please contact our Customer Care team or your distributor.

CHANGING CARTRIDGES

How do I change my G7 cartridge?

1. Power off G7
2. Using a Phillips #1 screwdriver, remove the screws on each side of the device
3. Pull up on the cartridge
4. Slide a new cartridge onto G7, ensuring the cartridge clicks into place
5. Replace screws into each side of the device

NOTE: Cartridges should always be replaced with a manual (not electric) screwdriver in order to avoid damage to the device's plastics.



CARTRIDGE CARE

Sensor contaminants

Gas sensors are susceptible to contamination by a variety of common chemicals, reducing or eliminating their sensitivity. Care should be taken when using silicones, cleaners, solvents and lubricants in close proximity to sensors as exposure may cause permanent damage to the sensor. If a device is exposed to a new chemical or compound, it is best practice to bump test and calibrate units to ensure proper sensor function is maintained.

CARTRIDGE SAFETY PRECAUTIONS

CAUTION

For safety reasons this equipment must be operated and serviced by qualified personnel only. Read and understand instruction manual completely before operating or servicing.

To meet the CSA LEL performance standard, the following safety precautions should be considered:

- Before each day's usage sensitivity must be tested on a known concentration of methane equivalent to 25-50% of full scale concentration. Accuracy must be within 0 and 20% of actual. Accuracy may be correct by calibration.
- Any rapid up-scale reading followed by declining or erratic reading may indicate a gas concentration beyond upper scale limit which may be hazardous.
- High off-scale readings may indicate an explosive concentration.
- This area must be free of flammable gases during calibration.

MULTI-GAS PUMP CARTRIDGE

USING PUMP

How do I use pump?

Attach a pump cartridge to your G7 device and enter a pumped mode (for step-by-step instructions on entering and exiting pump modes, see page 22-23 of this guide). Pump will turn on automatically. When pump is on, the pump icon will be visible on G7's main screen.

Where do I see my pump details?

When a pump cartridge is attached to G7, you can see the pump status screen by pressing the up or down arrow from G7's main status screen. Here you can see if pump is on or off, your hose length, flow rate and sample time (if enabled).

How do I bump test or calibrate my pumped cartridge?

Manually bump testing and calibrating pump cartridges is done using the same calibration cap and method as G7's multi-gas cartridge. Please refer to page 14-16 of this manual for step-by-step instructions.

Bump testing and calibrating with a G7 Dock requires an updated G7 Dock unit. If you are unsure if you have an updated Dock, please contact our Customer Care team.

How do I perform a block test?

A block test should always be performed after entering a pumped mode to ensure that your pump and tubing are working properly. Perform a manual block test by entering a pumped mode and blocking your inlet. This will cause G7 to go into yellow warning alarm, and your screen will let you know that your pump is blocked. Unblock your inlet, and if the warning alarm silences, you know that your equipment is safe to use.

What is flow rate?

Flow rate is the speed at which air is passing over your device's sensors. In order to provide accurate gas readings, flow rate needs to be above 150 ml/min. A flow rate less than 150 ml/min will result in a pump block yellow warning alarm. By default, Blackline's pump aims to maintain a flow rate of 300ml/min and G7 will automatically adjust its pump speed to maintain this rate.



PUMP OPTIONS

Settings for pump can be found in G7's main menu, under settings > pump options.

What is the sample timer?

The sample timer is the amount of time it takes for one air sample to be pumped to your sensors. This calculation is based on your hose length and flow rate. If sample timer is enabled, the pump status screen will show a countdown and beep once when a sample cycle has completed. The sample cycle will repeat continuously until you turn pump off. If disabled, the sample timer will not show and the device will not beep, but pump will continue to function normally.

How do I enable the sample timer?

1. Press OK to enter G7's main menu
2. Use the up and down arrows to navigate to *settings*, press OK
3. Use the up and down arrows to navigate to *pump options*, press OK
4. Select *sample timer off*
5. Select *yes* to confirm that you would like to enable the sample timer

How do I disable the sample timer?

1. Press OK to enter G7's main menu
2. Use the up and down arrows to navigate to *settings*, press OK
3. Use the up and down arrows to navigate to *pump options*, press OK
4. Select *sample timer on*
5. Select *yes* to confirm that you would like to disable the sample timer

What is hose length?

Hose length is an estimate of how long the tubing attached to pump is. This value is customizable from the pump options menu, and factors in to sample time.

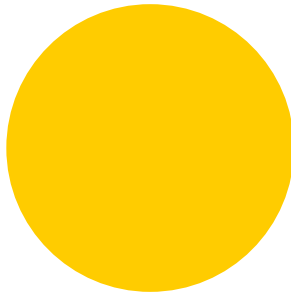
How do I change hose length?

1. Press OK to enter G7's main menu
2. Use the up and down arrows to navigate to *settings* and press OK
3. Use the up and down arrows to navigate to *pump options* and press OK
4. Select *hose length*
5. Use the up and down arrows to choose your units, meters or feet, and press OK
6. Use the up and down arrow to enter the first digit of your length and press OK
7. Use the up and down arrow to enter the second digit of your length and press OK
8. Select *yes* to confirm your length or select *edit* to make changes to your choice

REAL-TIME FEATURES

Your G7 can be equipped with many features to monitor your safety. They are categorized into the type of notifications they trigger — yellow pending alarms, yellow warning alarms, and red alerts. All are customizable in Blackline Live to best fit your needs. Speak to your safety supervisor to learn about how your G7 features are configured.

YELLOW PENDING ALARM FEATURES



Blinking

POTENTIAL FALL DETECTED

What is a potential fall detected?



Your device is constantly monitoring you for falls. If a potential fall is detected, G7 will initiate a yellow pending alarm. The fall detection sensitivity is configurable.

POTENTIAL NO-MOTION DETECTED

What is a potential no-motion detected?



Your device is constantly monitoring your motion. It will automatically detect if you do not move within a pre-set duration, and will initiate a yellow pending alarm. The no-motion period and sensitivity are configurable.

CHECK-IN REQUEST

What is a check-in?



If enabled, you can configure your device to request periodic check-ins throughout your shift. The check-in countdown is displayed at the top right of the LCD screen. At the end of the timer, your G7 will initiate a yellow pending alarm to confirm you are safe. The check-in timer and pending alarm time are configurable.

NOTE: Your device can be configured to check-in early, before the yellow pending alarm sounds. If enabled, you can push and hold the red latch button for the duration of three vibrations to reset your check-in timer before the audible alarm. An early check-in cannot be configured if Silent SOS alert is enabled.

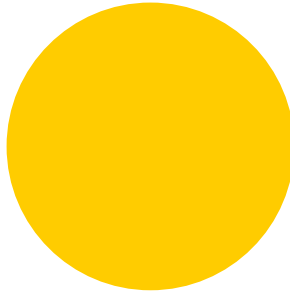
What do I do in the case of a yellow pending alarm?



If you are safe, push the red latch button. If you do not push the latch within the configured amount of time, your yellow pending alarm will communicate a red alert to monitoring personnel.

NOTE: G7 can be configured to mute pending alarms while driving at speeds above 35 km/hr (22 mph) or while charging.

YELLOW WARNING ALARM FEATURES



● ● ● ● ● ● ● Rapid Blinking ● ● ● ● ● ● ●

MESSAGES

How do I receive a message?



Your device can receive messages from monitoring personnel. When there is an incoming message, G7 will inform you with a yellow warning alarm.

How do I send a message?

You can choose from a list of 10 pre-programmed messages to send to monitoring personnel. The messages are customizable from Blackline Live. Press the OK button to enter the main menu, the up or down arrow buttons to navigate the menu, highlight your selection, and the OK button to send.

How do I send a custom message?

At the bottom of the pre-programmed message list is an option to send a 16-character custom message to monitoring personnel. Press the up or down arrow buttons to scroll through the alphabet and numbers, press the OK button to move to the next character, press the OK button again to send.

NOTE: In the confirmation screen of your custom message, you have the ability to edit the current message by pressing the up arrow button, send the message by pressing the OK button or cancel the message by pressing the down arrow button.

SPEAKER PHONE

How do I use two-way voice calling?



If you have a G7c with a voice-enabled service plan, your speakerphone will automatically answer a call from monitoring personnel. G7 will inform you of an incoming call with a yellow warning alarm and you will hear a beep signifying the two-way voice call has been connected. In a noisy environment, it may be necessary to remove and hold the device near your ear, as you would a two-way radio.

NETWORK CONNECTION INTERRUPTION

How do I know if the connection to my device is lost?



If your device loses connection with the Blackline Safety Network, it will inform you with a yellow warning alarm after 5 minutes. This amount of time is configurable.

LOW BATTERY

How do I know if my device battery is low?



If your battery level goes below 20%, it will inform you with a yellow warning alarm. This percentage level is configurable.

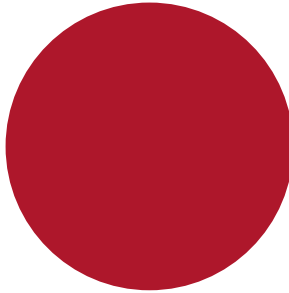
What do I do in the case of a yellow warning alarm?



Read your G7 screen. Press and hold the up and down arrow buttons at the same time to let G7 know you have read the message.

Yellow warning alarms are between you and G7, and will not notify monitoring personnel.

RED ALERT FEATURES



● ● ● ● ● ● ● **Rapid Blinking** ● ● ● ● ● ● ●

FALL DETECTED

What is fall detected?



If your device detects a fall and you have not responded to the yellow pending alarm, G7 will communicate a red alert to monitoring personnel. The fall detection sensitivity is configurable.

NO-MOTION DETECTED

What is no-motion detected?



If you are not moving and you have not responded to the yellow pending alarm, G7 will communicate a red alert to monitoring personnel. The no-motion period and sensitivity are configurable.

MISSED CHECK-IN

What is a missed check-in?



If enabled and you are unable to check-in during the yellow pending alarm time, your device will communicate a red alert to monitoring personnel.

SOS ALERT

What is an SOS Alert?



If you require assistance, you can manually send an SOS alert to monitoring personnel and request immediate help to your location by pulling the red latch.

NOTE: Your device can be configured to send a Silent SOS alert to monitoring personnel without light, sound and vibration.

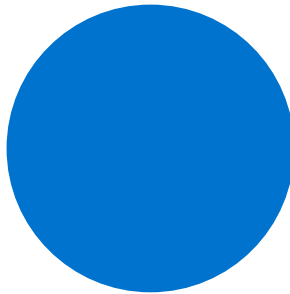
What do I do in the case of a red alert?



Red alerts are immediately communicated to monitoring personnel. Read the information on your G7 screen. Press and hold the up and down arrow buttons at the same time to mute the sound and vibration. This does not cancel the red alert sent to monitoring personnel.

LiveResponse

When monitoring personnel have acknowledged your red alert, the blue LiveResponse light will shine on your device.



This light lets you know that remote monitoring personnel are responding by following your team's emergency protocol. Once monitoring personnel have resolved the red alert, the blue LiveResponse™ light will shut off.

Depending on your response protocol, a G7c with voice enabled service plan will automatically connect your speaker phone to monitoring personnel.

PUSH-TO-TALK (PTT)

If you have a G7c with a PTT service plan and PTT is enabled in your device's configuration profile, push-to-talk allows you to send and receive voice messages to other G7c device users, similar to a walkie-talkie. Push-to-talk is only available on G7c devices.

TRANSMITTING

How do I send a PTT message?



1. Press and hold the red latch
2. When G7c finishes beeping, continue to hold and begin talking with the device about 6 inches from your mouth.
NOTE: If you are using an O₂ sensor, be sure that you are talking into G7's microphone, not the cartridge, as this could cause gas alarms.
3. When you're finished talking, release the latch. G7 allows PTT messages up to 30 seconds in length.
4. G7c will beep once more to let you know it's done listening

RECEIVING

How do I receive a PTT message?



1. G7c will beep twice to signal an incoming PTT message
2. G7c will play the message
3. G7c will beep once more when the message is done

NOTE: G7c's screen will display which channel you are transmitting to or receiving from.

AVAILABLE CHANNELS

Channel 0-99

Channels 0 through 99 are available for everyday use. When on a specific channel, you will only be able to communicate with devices that are on the same channel, and will receive transmissions from all call.

All call

All call is a channel where G7c will transmit to all PTT devices in your organization, and will only hear transmissions from all call. This channel is recommended for safety supervisors or managers.

Receive only

The receive only channel only hears transmissions from all call, and can't transmit to other devices.

CHANGING CHANNELS

How do I change my channel?

Changing your PTT channel is done from the PTT channel menu.

To change to a specific channel number:

1. Press the OK button to enter G7c's main menu
2. Use the up and down arrows to navigate to *PTT channels*, and select OK.
3. Select *enter channel #*
4. Use the up and down arrows to enter the first digit of your channel. For example, for channel 40, the first digit is 4.
5. Press OK
6. Use the up and down arrow to enter the second digit of your channel. For example, for channel 40, the second digit is 0.
7. Press OK
8. Select *yes* to confirm and change G7c's channel or select *edit* to make changes

To change to receive only or all call:

1. Press the OK button to enter G7c's main menu
2. Use the up and down arrows to navigate to *PTT channels*, and select OK.
3. Select *receive only or all call*
4. Read the message on the screen
5. Select *yes* to confirm

NOTE: You can also navigate to the PTT channels menu by pressing the up or down arrow from the main screen, and pressing OK when the current PTT channel shows.

PTT AUDIO ACCESSORIES



G7c is equipped with audio pairing in order to use an audio accessory with push-to-talk. All settings for audio devices can be found in G7's main menu, under settings > audio pairing.

How do I pair a new audio device?

1. Press OK to enter the main menu
2. Use the up and down arrows to navigate to *settings*
3. Navigate to *audio pairing*, and press OK
4. Use the up and down arrows to navigate to *pair new*, and press OK
5. Put your accessory into pairing mode as per its instructions
6. Select your device from the list
7. G7 will give you a successful connection message when your device is connected, and you will see an audio accessory icon in the info bar of G7c's main screen

How do I reconnect to an audio device?

G7 will remember your audio accessory and pair automatically when both are powered on. In the case that it doesn't, you can reconnect to your accessory from the audio pairing menu.

1. Press OK to enter the main menu
2. Use the up and down arrows to navigate to *settings*
3. Navigate to *audio pairing*, and press OK
4. Use the up and down arrows to navigate to *reconnect*, and press OK
5. Ensure your accessory is on
6. G7c will reconnect to your audio accessory, and you will see an audio accessory icon in the info bar of G7c's main screen when the connection is successful

How do I forget a paired device?

1. Press OK to enter the main menu
2. Use the up and down arrows to navigate to *settings*
3. Navigate to *audio pairing*, and press OK
4. Use the up and down arrows to navigate to *forget device*, and press OK
5. Select *yes* to confirm that you would like to forget your accessory

NOTE: Audio accessories can only be used for push-to-talk purposes, and cannot be used for early check-ins or confirming pending alarms.

FIRMWARE UPDATES

OVER-THE-AIR (OTA) FIRMWARE UPDATES

How does G7 get updated?

To offer new features, Blackline Safety periodically releases over-the-air (OTA) firmware updates. Your G7 device will automatically download and install the new firmware.

Blackline Safety will contact you directly for specific information about new updates. If you have any questions, please contact our Customer Care team.

NOTE: OTA firmware updates are only available for G7 Bridge when it is brought into cellular range. If G7 Bridge cannot be removed from satellite only reception, contact Customer Care to receive a firmware update kit.

SUPPORT

LEARN MORE

Visit support.BlacklineSafety.com to find support and training materials for G7.

CUSTOMER CARE

For technical support, please contact our Customer Care team.

North America (24 hours)

Toll Free: 1-877-869-7212 | support@blacklinesafety.com

United Kingdom (8am-5pm GMT)

+44 1787 222684 | eusupport@blacklinesafety.com

International (24 hours)

+1-403-451-0327 | support@blacklinesafety.com

SPECIFICATIONS

DETAILED SPECIFICATIONS

Standard G7 safety features

Fall detection and No-motion detection:

Tri-axis accelerometer, tri-axis gyro, software processing, configurable sensitivity, configurable time window

(1-30 mins, or off) for no-motion detection

Emergency latch: Pull latch to trigger

Silent emergency: Press and hold latch to trigger

Low-battery: configurable threshold

Worker check-in: Configurable timer (5–180 min, or off), automatic check-in when driving

Additional gas cartridge features

Time-weighted average (TWA)

Short-term exposure limit (STEL)

High gas alert

Low gas alert

Bump test and calibration notification

Bump test and calibration failure alert

Size & weight

G7 with Standard Cartridge

Size: 64 mm x 124 mm x 27 mm (2.5" x 4.9" x 1.1")

Weight: 162 g (5.7 oz)

G7 with Single-gas Cartridge

Size: 64 mm x 128 mm x 27 mm (2.5" x 5.0" x 1.1")

Weight: 167 g (5.9 oz)

G7 with Quad-gas Cartridge

Size: 66 mm x 150 mm x 27 mm (2.5" x 5.9" x 1.1")

Weight: 192 g (6.8 oz)

Gas sensor options

H₂S (hydrogen sulphide)

Sensor type: Electrochemical

Range: 0-100 ppm

Resolution: 0.1 ppm

LEL combustible

Sensor type: NDIR and pellistor options

Range: 0-100% LEL

Resolution: 1% LEL

CO (carbon monoxide)

Sensor type: Electrochemical, hydrogen resistant option available

Range: 0-500 ppm

Resolution: 1 ppm

O₂ (oxygen, lead-free)

Sensor type: Long-life pumped electrochemical

Range: 0-25% vol

Resolution: 0.1 %vol

NH₃ (ammonia)

Sensor type: Electrochemical

Range: 0-100 ppm

Resolution: 0.1 ppm

SO₂ (sulfur dioxide)

Sensor type: Electrochemical

Range: 0-100 ppm

Resolution: 0.1 ppm

Cl₂ (chlorine)

Sensor type: Electrochemical

Range: 0-20 ppm

Resolution: 0.1 ppm

COSH (CO + H₂S)

Sensor type: Electrochemical

Range: 0-500 CO, 0-100 ppm H₂S

Resolution: 1 ppm CO, 0.1 ppm H₂S

CO₂ (carbon dioxide)

Sensor type: NDIR

Range: 0-50,000 ppm

Resolution: 50 ppm

PID (photoionization detector)

Sensor type: PID

Range: 0-6,000 ppm

Resolution: 0.1 ppm at 0 to 100 ppm, 2 ppm at 100 to 6,000 ppm

User interface

168 by 144 pixel graphical, high contrast, liquid crystal display with front lighting, menu system driven by a three-button keypad, power button (on/off), check-in button (check-in/silent emergency), emergency latch (send emergency alert)

Multi-language support: Yes, EN, FR, ES, NL, DE, IT, PT

User notification

Green SureSafe® light: Blinking (powered), continuous (connected)

Yellow top and front lights: Personal pending alarm and personal warning alarm

Red top and front lights: Remote alert communicated

Blue LiveResponse™ top and front lights: Monitoring team confirmation that alert has been acknowledged

Personal alarm Indicators: speaker, LEDs and vibration motor

Speaker sound pressure level: ~90 dB @ 10 cm (~90 dB @3.94")

Voice calling: Speakerphone and phone modes

G7c wireless radio

Wireless coverage: 100 countries

North America: 2G/3G radio, GSM 850 MHz, PCS 1900 MHz, 3G UMTS bands 2, 5 and 6

International: 2G/3G radio, E-GSM 900 MHz, DSC 1800 MHz, 3G UMTS bands 1 and 8

Antenna: Internal dual-band

G7x wireless radio

Works with G7 bridge satellite base station

Radio: 902.0–928.0 MHz, 1 Watt

Antenna: Internal

Radio link range: 2 km (1.25 mi) real-world

Wireless updates

Device configuration changes: Yes,

Device firmware upgrade over-the-air (FOTA): Yes

Location technology

GPS Radio: 48-channel high sensitivity

Assisted-GPS: Yes

GPS Accuracy: ~5 m (16 ft) Outdoors

Indoor location technology: Blackline Safety location beacons

Location update frequency: G7c 10 sec, G7x 15 min

Power & battery

Rechargeable Li-ion battery: 1250 mAh Li-ion

Battery Life: 18 hours continuous use at 20°C (68°F)

Charge time: 4 hours

Environmental

Storage temp.: -30°C to 75°C (-22°F to 167°F)

Operating temp.: -20°C to 55°C (-4°F to 131°F)

Charging temp.: 0°C to 45°C (32°F to 113°F)

Ingress Protection: IP67

Approvals

G7c: SAR, RoHS, CE, RCM

Unit ID 3567xxxxxx

FCC ID: W77G7C IC: 8255A-G7C

Contains FCC ID: XPY1CGM5NNN, IC: 8595A-1CGM5NNN or

Unit ID 3566xxxxxx

Contains FCC ID: XPY1CGM5NNN, IC: 8595A-1CGM5NNN

Canada and USA: Class I Division 1 Gr A,B,C,D T4; Class I Zone 0 AEx ia IIC T4; Ex ia IIC T4 Ga

IECEX: Ex ia IIC T4 Ga

ATEX: Ex ia IIC T4 Ga

LEL-NDIR: -20°C to 45°C; CSA C22.2 No.152; ISA 12.13.01

G7x: SAR, RoHS, RCM

FCC ID: W77G7X | **IC ID:** 8255A-G7X

Canada and USA: Class I Division 1 Gr A,B,C,D T4; Class I Zone 0 AEx ia IIC T4; Ex ia IIC T4 Ga

IECEX: Ex ib IIC T4 Gb

LEL-NDIR: -20°C to 45°C; CSA C22.2 No.152; ISA 12.13.01

Warranty

G7: two years

Cartridges: Lifetime

G7 complete plan: three years

Blackline Live web application

Cloud-hosted safety monitoring web application is highly customizable for every customer requirement. Includes live map, employee address book, user roles, alert management, device configurations, alert setups and reporting.

** Check with Blackline for approval status. All specifications subject to change.*

LEGAL NOTICES AND CERTIFICATIONS

LEGAL NOTICES

Information in this document is subject to change without notice. This document is provided "as is" and Blackline Safety Corp. ("Blackline") and its affiliated companies and partners assume no responsibility for any typographical, technical or other inaccuracies in this document. Blackline reserves the right to periodically change information that is contained in this document. However, Blackline makes no commitment to provide any such changes, updates, enhancements or other additions to this document to you in a timely manner or at all.

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The Blackline, Alert, Locate, Respond, families of related marks, images and symbols, including Blackline, G7, G7c, G7x, LiveResponse, Loner, LonerIS, 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

Your G7 device is warranted against defects in materials and workmanship for up to two years from 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.

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.

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.

Industry Canada Compliance

This device complies with Industry Canada licence-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.

Notification d'Industrie Canada

Ce dispositif est conforme au(x) format(s) RSS libre(s) d'Industrie Canada. Son fonctionnement est assujéti 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 dispositif.

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 may contain an 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.

INTRINSICALLY SAFE

Intrinsically Safe

This device is certified Intrinsically Safe for use in Class I Division 1 Groups A,B,C,D T4; Ex da ia IIC T4 Ga; Class I Zone 0 AEx da ia Group IIC T4 Ga hazardous (classified) locations. G7x is certified as Ex ib IIC T4 Gb under IECEx.

Sécurité intrinsèque

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

CSA: 70098755

UL 60079

Class I Division 1 Groups A,B,C,D,T4

Class I Zone 0 AEx da ia IIC T4 Ga

CAN/CSA C22.2 No. 60079

Ex da ia IIC T4 Ga

IECEx/ATEX: IECEx CSA 17.0005;

Sira 17ATEX2083X

IEC 60079; EN 60079

G7c: Ex da ia IIC T4 Ga

G7x: Ex ib IIC T4 Gb



-20°C ≤ Ta ≤ +55°C

G7c Portable Toxic Gas Detectors combining a Base Unit with a Gas Cartridge
Base unit P/N "G7*-#" (* = c or x; # = NA, EU or AZ)

Gas Cartridge – Where # = Electro chemical sensor identifier or "X" indicating no sensor
No Gas Module P/N "Z" | Single Gas Module P/N "S-#" | Multi Gas Module P/N "Q-####"

Battery powered (3.8V nominal Lithium); Temperature Code T4, Ambient
Temperature Range -20°C ≤ Ta ≤ +45°C. 0-100% LEL.

Caution: For safety reasons this equipment must be operated and serviced by qualified personnel only. High off-scale readings may indicate explosive concentration.

Attention: Pour des raisons de sécurité, cet équipement doit être utilisé, entretenu et réparé uniquement par un personnel qualifié. Des lectures supérieures à l'échelle peuvent indiquer des concentrations explosives.

The equipment shall only be charged when in the non-hazardous area using a charger specifically supplied for use with the unit (for example part number SAW06D-050-1000x, manufactured by Shenzhen Shi Ying Yuan Electronics Co., Ltd), approved as SELV or Class 2 equipment against IEC 60950, IEC 61010-1 or an equivalent IEC standard. The maximum voltage and current from the charger shall not exceed 5.625Vdc and 2A respectively.

L'équipement ne doit être chargé que dans la zone non dangereuse à l'aide d'un chargeur spécifiquement fourni pour l'utilisation avec l'appareil (par exemple, la référence SAW06D-050-1000x, fabriquée par Shenzhen Shi Ying Yuan Electronics Co., Ltd) SELV ou Classe 2 selon IEC 60950, IEC 61010-1 ou une norme IEC équivalente. La tension et le courant maximum du chargeur ne doivent pas dépasser respectivement 5.625Vdc et 2A.

Standards:

CSA C22.2 No 60079-0:15

CSA C22.2 No 60079-11:14

CSA C22.2 No 60079-1:16

C22.2 No. 152 - M1984 (R2011)

UL 913, Eighth Edition

UL 60079-0 Sixth Edition

UL 60079-11 Sixth Edition

UL 60079-1 Seventh Edition

ANSI / ISA 12.13.01: 2000

IEC 60079-0: 2011 Edition:6.0

IEC 60079-1: 2014-06 Edition:7.0

IEC 60079-11: 2011 Edition:6.0

EN 60079-0:2012/A1:2013

EN 60079-11:2012

EN 60079-1:2014

Consult with your organization's safety professional for further information regarding the topic of intrinsic safety and any policies, procedures, facilities, or locations within facilities that may be related to intrinsic safety.

Si vous plaît consulter professionnel de la sécurité de votre organisation pour de plus amples informations concernant le sujet de la sécurité intrinsèque et les politiques, les procédures, les installations, ou emplacements au sein des établissements qui peuvent être liés à la sécurité intrinsèque.

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0187/R4/2018-09-13

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