blacklinesafety

G7 Dock

Technical User Manual

Contents

WARNING

Electrical equipment may be hazardous if misused.

Seek advice from your local electronics recycling authority regarding the disposal of your device. Do not dispose Blackline products in your household trash.

DANGER

Do not use G7 Dock in areas classified as hazardous locations, where there is risk of explosion due to presence of gas, vapor, or dust. G7 Dock is not certified as intrinsically safe.

Do not place G7 Dock in or near open flame or submerge in liquid.

1 OVERVIEW

G7 Dock is Blackline Safety's accessory for completing compliance operations (bump testing and calibration) and charging G7. It supports both G7c and G7x devices with single-gas, multi-gas diffusion or multi-gas pumped cartridges.

Simply insert G7, and G7 Dock will do the rest. It automatically charges G7 and places G7 into a test-ready mode to eliminate false alerts.

1.1 G7 DOCK CONNECTIVITY

G7 Dock is not inherently connected to the Blackline Safety Network. A connected G7 device placed in G7 Dock communicates to the network and to G7 Dock.

The Blackline Safety Network is the cloud-hosted system used to monitor your safety. It includes cellular networks, satellite networks, our Blackline Live cloud-based application, your monitoring account, and your personal safety monitoring device.

Each device requires an active service plan to connect to the Blackline Safety Network.

1.2 BLACKLINE LIVE

Blackline Live keeps track of G7 and G7 Dock events, including alert history, gas calibrations, and bump tests, and eliminates the need to manually retrieve data logs from the field. When in G7 Dock, all G7 data is communicated in real-time.

For more information, please see Blackline Live.

1.3 WHAT'S IN THE BOX

Your G7 Dock comes with the following components:

- G7 Dock
- Tubing
- Quick-connects (four male, one female)
- Power components:
  - USB cable
  - USB power adapter

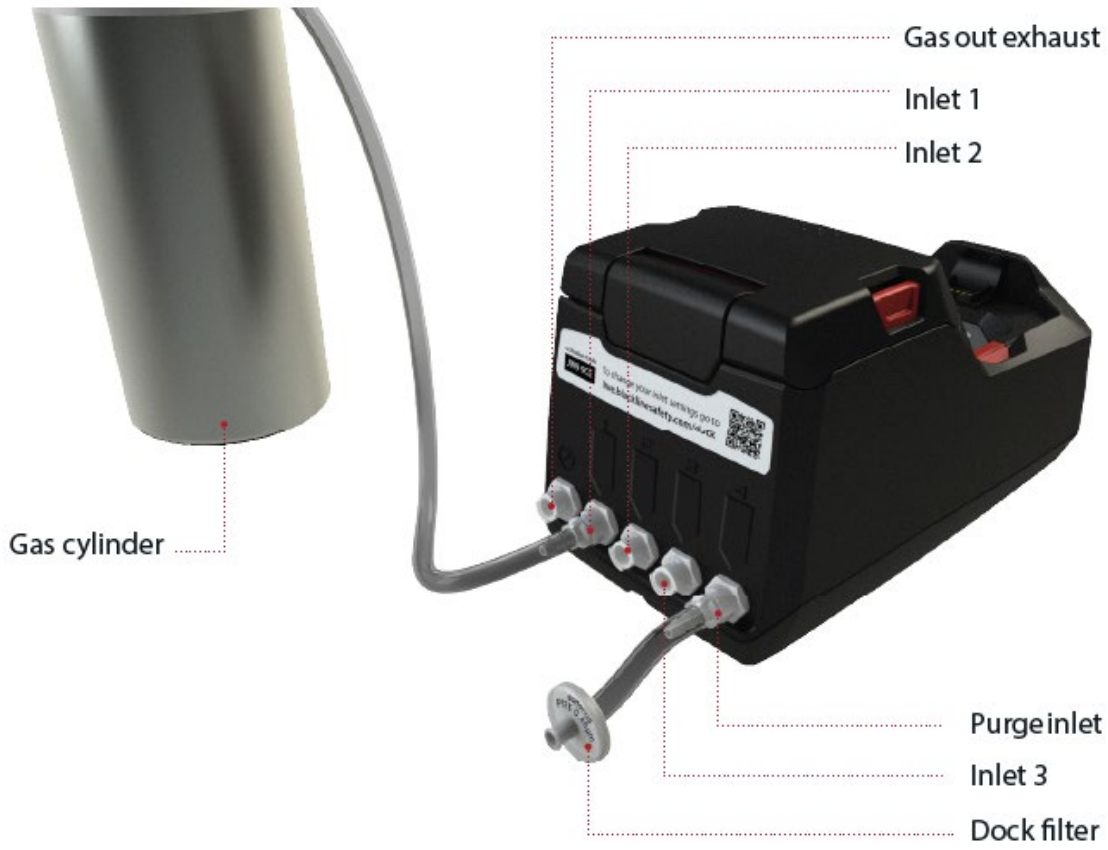
- Dock filter
- Multi-lingual sticker sheet
- G7 Dock Getting Started Guide

1.4 HARDWARE DETAILS

2 SET UP

2.1 GAS INLET CONFIGURATION

The back of G7 Dock is equipped with a Gas out exhaust and four gas inlets with quick-connects. The inlets are pre-programmed for you.



When looking at the back of G7 Dock, the Gas out exhaust is the connector on the far-left side of the dock. It is used to transfer calibration gas to a safe exhaust location.

NOTE: You should never plug gas into the Gas out exhaust.

The next three inlets (to the right of the Gas out exhaust) are configured to support your selected gases and gas mixtures. The table below shows an example of a configuration with and without Chlorine (Cl_2). Your configuration may be different depending on the gases configured in Blackline Live for your site.

NOTE: For G7 Docks with serial numbers beginning with 8247 and higher, inlet 1 has been optimized for use with reactive gases such as Cl_2. If you are configuring G7 Dock for use with Cl_2, you must use inlet 1 for the Cl_2.

	WITH CHLORINE	WITHOUT CHLORINE	COMPOSITION	
			COMPONENTS	CONCENTRATION
INLET 1	CHLORINE (CL_2)		CHLORINE	5 PPM
		AMMONIA (NH_3)	AMMONIA	50 PPM
INLET 2	MULTI-GAS COMBINATION		HYDROGEN SULFIDE	25 PPM
			CARBON MONOXIDE	100 PPM
			METHANE	50% LEL
			OXYGEN	18%
			NITROGEN	BALANCE
INLET 3	SULFUR DIOXIDE (SO_2)		SULFUR DIOXIDE	10 PPM

Inlet 4 is configured as a purge inlet, supplying clean air to remove residual gas from G7 Dock. When using dock in dusty or humid environments, you can attach the optional dock filter subassembly to the purge inlet to ensure dock is being purged with clean air.

The dock filter subassembly is made up of four pieces:

- a disposable filter
- a luer fitting
- 2″ tube
- one of the provided male quick connects

The filter piece may need to be replaced as it absorbs contaminants from the air.

2.2 CUSTOMIZING INLETS

All four inlets are customizable, and a multi-lingual sticker sheet is provided to label customized inlets.

Changes to your inlet configuration can be made in G7 Dock's configuration profile, from the Docks page on Blackline Live. The activation code on the back of the Dock can be used to identify it from the list. If you are having difficulties accessing this page or finding G7 Dock in Blackline Live, please contact our Customer Care team.

2.3 REACTIVE GASES

If you are using chlorine (Cl_2) with G7 Dock, you must use the following:

- Inlet 1, which has been optimized for Cl_2 and other highly reactive gases based on order of gas calibration or bump testing.
- Teflon lined tubing (ACC-FEP-T2).
- A stainless steel regulator, or a regulator with a Viton valve seat and seals (ACC-DFR-V).

For more information on bump testing and calibrating with reactive gases, please see G7 Gas Sensor Bump Testing and Calibration Order.

2.4 CONNECTING G7 DOCK TO A CALIBRATION GAS CYLINDER

G7 Dock provides quick-connects that attach to one end of the tube. Join the tube to the configured inlet at the back of G7 Dock by connecting both quick-connect ends and twisting clockwise until it clicks securely into place. Ensure the other end of the tube is attached to a demand flow regulator on the gas cylinder.

3 OPERATING

3.1 REQUIREMENTS

For G7 Dock to operate, you will need the following:

- G7c or G7x personal safety monitoring device (single-gas or multi-gas cartridge)
- Gas cylinder with specific single-gas or multi-gas mixture
- If calibrating with chlorine ($Cl_{2)}$:
  - Teflon-lined tube (ACC-FEP-T2)
  - Stainless steel regulator, or a regulator with a Viton valve seat and seals (ACC-DFR-V)
- 120/240 VAC power source and power components

NOTE: You must use the power components provided with your G7 Dock.

3.2 POWERING ON

1. Insert the power cable into the port on the bottom of G7 Dock. Feed the power cable through the tracks along the bottom to allow the dock to lie flat on a table surface or when mounted on a wall.

   When plugged in, the green light at the charge clip will turn on to indicate power.

2. Press inward on the two red release tabs until dock's lid clicks open.

3.3 PLACING G7 INTO G7 DOCK

1. Slide G7 into G7 Dock's charge clip at an angle. Ensure the charge clips of both devices are connected.

2. Keeping the charge clips connected, lie G7 down into G7 Dock and push down until the device clicks in place.

3. Close G7 Dock's lid and press down firmly until the release tabs click into place on both sides.

4 FEATURES

4.1 CHARGING G7

G7 devices will automatically start charging when placed into a powered G7 Dock. It will take a maximum of four hours to fully charge G7.

NOTE: If G7 is not charging, confirm the following:

- G7 Dock is powered (the green light is on).
- The charge clip is clean of debris.
- The G7 device is properly placed on the dock charge clip.

4.2 BUMP TEST

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 sensors 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.

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.

Overdue bump test

If your G7 device is overdue for a bump test, it will automatically begin a bump test when placed into G7 Dock.

To perform a bump test that is not overdue:

1. Power on your G7 device.
2. Place G7 into G7 Dock.
3. Close the lid until it clicks in place.
4. Press G7's arrow buttons to navigate to **Bump test** on the LCD screen menu and press G7's OK button to select. G7 Dock will perform the bump test.
5. G7 will indicate whether the bump test has passed or failed and when it is ready to be removed from G7 Dock.

4.3 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.

Calibration settings

G7 devices have their own gas calibration settings, which can be modified in Blackline Live. If the device's configured gas settings do not match G7 Dock's settings, the calibration will continue using the Dock's settings as a default. If G7 Dock is configured correctly to the gas concentrations being used, the calibration will be successful.

Overdue calibration

If your G7 device is overdue for a gas calibration, it will automatically begin calibrating when placed into G7 Dock.

To perform a calibration that is not overdue:

1. Power on your G7 device.
2. Place G7 into G7 Dock.
3. Close the lid until it clicks in place.

4. Press G7's arrow buttons to navigate to **Calibration** on the LCD screen menu and press G7's OK button to select. G7 Dock will perform the calibration.
5. G7 will indicate whether the calibration has passed or failed and when it is ready to be removed from G7 Dock.

4.4 G7 DOCK UPDATE

Updates to your Dock's settings can be made in your G7 Dock's configuration profile, from the Docks page on Blackline Live. The activation code on the back of Dock can be used to identify it from the list. If you are having difficulties accessing this page or finding G7 Dock in Blackline Live, please contact our *Customer Care* team.

NOTE: G7 Dock does not need to be connected to the Blackline Safety Network to charge a G7 device or complete calibrations and bump tests, but the G7 device does need to be connected to the network to update G7 Dock configuration settings.

4.5 MULTI-DOCK SETUP

WARNING: Do not use a multi-dock setup if you are calibrating with Chlorine (Cl_2). Calibration with Cl_2 requires that the tube length be kept as short as possible, which is not supported by a multi-dock set-up.

In situations where multiple safety monitoring devices require calibration and bump testing, docks can be joined together to perform these functions across all connected devices. Multiple G7 Docks can be connected to a single-gas cylinder by using tubes, check valves, and T-connectors. One gas cylinder can support five G7 Docks at one time. Blackline offers a multi-dock setup kit to help with multi-dock setup. To order, please contact our Customer Care team or your distributor.

Required parts and tools:

- G7c or G7x personal safety monitoring devices (single-gas or multi-gas cartridge)
- G7 Docks for each device
- Tube (1/8" inner diameter)
- Nylon or polyethylene T-connectors
- Nylon check valves
- Gas cylinder with specific single-gas or multi-gas mixture and a demand flow regulator
- 120/240 VAC power source for each dock

Calibrating and bump testing multiple devices

G7 Docks in a multi-dock setup act independently of each other - calibrations and bump tests are conducted in the same manner that they would be if they were set up separately. This means that G7 Docks connected to the same gas cylinder can do calibrations and bump tests at the same time without interfering with each other.

5 MOUNTING

G7 Dock can be placed flat on a table or mounted to a wall.

5.1 WALL-MOUNTING

When mounting G7 Dock to a wall, ensure the location is within reach of a power source and gas cylinder.

To mount G7 Dock, remove the mounting guide located on page 21. Place mounting guide on wall to plan where to place the mounting screws. Attach screws to the wall according to the '+' marks.

Align G7 Dock wall-mounting holes (located on the back of the dock) with the screws and slide downward to lock in place.

6 G7 DOCK CARE

6.1 MAINTENANCE

To make sure G7 Dock is in working condition, ensure the following:

- Gas valves inside the G7 Dock lid move easily and are free of debris.
- Gas inlets and outlet are free of debris.
- Charge clip is free of debris.

To clean G7 Dock, disconnect from power and wipe down with a damp cloth. Do not use pressure spray or cleaning solvents.

For best performance, G7 Dock should be operated in a dry and dust-free environment.

7 TROUBLESHOOTING

7.1 SETUP FAQ

Why is G7 telling me to close the lid when I have already closed it?

If your device is telling you to close the lid when you try to run a bump test or calibration, it is likely that the lid has not been closed properly. Ensure that you press down firmly on both sides of the lid so that both release tabs click into place.

Why is my device unresponsive when I put it into G7 Dock?

If your device does not respond when placed into G7 Dock, it may not be properly connected to the dock, or the dock may not be connected to a power supply. Remove your device from G7 Dock and check to see if the green power light is on.

If the power light is on, ensure that:

- Charge clips on both the device and dock are connected.
- Device clicks into place when set down into the Dock.
- Lid is properly closed. Ensure that you press down on both sides so that both release tabs click into place.
- Charge clips are clean and free of debris.

If the power light is off, ensure that:

- Power cable is properly plugged into dock and the power adaptor
- Power source being used is 120/240 VAC

7.2 CALIBRATION AND BUMP TEST FAQ

Why are my bump tests and calibrations failing?

Calibrations and bump tests can fail if there is not enough gas reaching the sensors. To ensure that gas is flowing from the gas cylinder to G7 Dock, check that:

- There are no kinks or crimps in the tubing.
- The gauge on the gas cylinder indicates there is gas inside (i.e., check that the gas cylinder is not empty).
- The gas cylinder is using a demand-flow regulator.
- The quick-connects are properly connected to G7 Dock.
- Gas concentrations in the gas cylinder match Dock configurations.

If G7 Dock is still not operating correctly, please contact *Customer Care*.

8 SPECIFICATIONS AND LEGAL NOTICES

8.1 DETAILED SPECIFICATIONS

Size & Weight
Size: 215mm x 102mm x 95mm (8.46" x 3.94" x 3.74")
Weight: 202g (7.1oz)

Gas configuration
4 customizable gas inlets, 1 gas outlet

Bump test
25 second bump test, less than 10 seconds of gas applied during a bump

Calibration
4 minute calibration, less than 2 minutes of gas applied during a calibration

Gas Usage
Optimized gas delivery (less than 500mL/min)

Power Supply
Blackline requires using the power supply provided with your G7 Dock.

Input voltage: 5 VDC @ 1000 mA
Power connector: Micro-USB
120/240 VAC power adaptor and USB cable included.

Regulatory Compliance
RCM
CAN ICES-3(B)/NMB-3(B)
FCC
CE

Features
- Over-the-air (OTA) configuration updates
- Automatic bump
- Automatic calibration
- Dock usage reports
- Gas usage reports

Warranty
Two year warranty

8.2 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.

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.

Warranty

Your G7 Dock is warranted against defects in materials and workmanship for up to two years from the date of purchase. For further details regarding your Blackline warranty, please refer to your Terms and Conditions of Service. Visit http://www.blacklinesafety.com for more information.

9 SUPPORT

9.1 LEARN MORE

Visit support.blacklinesafety.com to find support and training materials for the G7 Dock.

9.2 CUSTOMER CARE

For technical support, 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

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