



BK700HDLE

Wireless Imager Handle Operating Manual

General Safety Information



Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

Work Area Safety

- Keep your work area clean and well lit. Cluttered benches and dark areas may cause accidents.
- Do not operate electrical devices or visual inspection tool in explosive atmospheres, such as in the presence of flammable liquids, gases, or heavy dust. Electrical devices or visual inspection tools create sparks which may ignite the dust or fumes.
- Do not use the visual inspection tool around corrosive chemicals.
- Keep bystanders, children, and visitors away while operating visual inspection tool. Do not let visitors contact the unit.

Personal Safety

- Stay alert, watch what you are doing and use common sense. Do not use visual inspection tool while tired or under the influence of drugs, alcohol, or medications. A moment of inattention while operating tools may result in serious personal injury.
- Do not overreach. Always keep proper footing and balance. Proper footing and balance enables better control of the tool in unexpected situations.
- Use safety equipment. Always wear eye protection (users and bystanders). Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.
- Use proper accessories. Do not place this product on any unstable cart or surface.
- The product may fall causing serious injury to a person or serious damage to the product. Prevent object and liquid entry. Never spill liquid of any kind on the video display unit. Liquid increases the risk of electrical shock and damage to the product.
- Do not use this device for personal or medical use/inspection in any way.
- The unit is not shock-resistant. Do not use it as a hammer or drop it.



To reduce the risk of serious injury, read these precautions carefully before using the battery charger or battery.



A/C Power Supply

- Do not probe A/C power supply with conductive objects. Shorting of battery terminals may cause sparking, burning or electrical shock.
- Do not use A/C power supply if damaged. A damaged A/C power supply increases the risk of electrical shock.
- Use an appropriate power source. Do not attempt to use a step-up transformer or an engine generator. Doing so may cause damage to the A/C power supply of the video inspection device resulting in electrical shock, fire or burns.
- Do not allow anything to cover the A/C power supply while in use. Proper ventilation is required for correct operation of the A/C power supply. Allow a minimum of 4" (10 cm) of clearance around the charger for proper ventilation.
- Unplug the A/C power supply when not in use. Reduces the risk of injury to children and untrained persons.

- Unplug the A/C power supply from outlet before attempting any maintenance or cleaning. Reduces the risk of electrical shock.
- Do not use A/C power supply in a damp, wet or explosive environment. Do not expose to rain, snow or dirt. Contaminants and moisture increase the risk of electrical shock.
- Do not open the A/C power supply or visual inspection device housings. Have repairs performed only at authorized locations. (See Snap-on Service Center).
- Do not carry the A/C power supply by power cord. Reduces the risk of electrical shock.

Battery Safety

- The batteries in the BK7000HDLE are NOT user replaceable. Call your Service Center if you believe the battery needs service.
- Properly dispose of the BK7000HDLE. Exposure to high temperatures can cause the battery to explode, so do not dispose of in a fire. Some countries have regulations concerning battery disposal. Please follow all applicable regulations.
- Charge battery in temperatures above 32 degrees F (0 degrees C) and below 122 degrees F (50 degrees C). Store BK7000HDLE in temperatures above -4°F (-20°C) and below 140°F (60°C). Storage for a long time at temperatures above 95°F (35°C) will reduce the capacity of the BK7000HDLE. It is recommended to store the BK7000HDLE at 77°F (25°C) to maximize battery life. Proper care will prevent serious damage to the battery. Improper care of the battery may result battery leakage, electrical shock, and burns.

Battery Safety continued

- If the BK7000HDLE is damaged, do not plug the A/C power supply into it. Do not attempt to charge.
- Never disassemble the BK7000HDLE unit. There are no user-serviceable parts inside.
- Disassembling the BK7000HDLE may cause electrical shock or personal injury.

Avoid contact with fluids leaking from the BK7000HDLE unit. Fluids may cause burns or skin irritation. Thoroughly rinse with water in case of accidental contact with fluid. Consult doctor if fluid comes into contact with eyes.

BK7000HDLE Use and Care

- Use visual inspection tool only as directed. Do not operate the inspection unit unless the owner's manual has been read and proper training has been completed.
- Do not immerse the visual inspection tool in water. Store in a dry place. Such measures reduce the risk of electric shock and damage. The imager head and the cable are water resistant when the unit is fully assembled, but the video display unit/handle is not.
- Do not use the camera if condensation forms inside the lens. Let the water evaporate before using again.
- Do not use tool if ON/OFF switch is not properly working. Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- Store idle equipment out of the reach of children and other untrained persons. Equipment is dangerous in the hands of untrained users.
- Maintain the visual inspection tool with care. Properly maintained tools are less likely to cause injury.
- If unit is dropped, check for breakage of parts, and any other conditions that may affect the tool's operation. If

damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

- Use only accessories that are recommended by the manufacturer for your tool. Accessories that may be suitable for one tool may become hazardous when used on another tool.
- Dry your hands before turning the unit ON or OFF.
- Protect against excessive heat. The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat. Do not use the unit near moving machinery or areas where the temperature will exceed 140°F (60°C).

Service

- Do not attempt to take any pieces of this unit apart unless directed to by this manual.
- Follow instructions for changing accessories. Accidents are caused by poorly maintained equipment.
- Provide proper cleaning. Do not use acetone to clean the unit. Instead, use isopropanol.
- Stop using the unit if it starts smoking or emitting noxious fumes.
- Refer visual inspection tool to qualified service personnel if any of the following conditions are met:
 - If liquid has been spilled or objects have fallen into product;
 - If product does not operate normally by following the operating instructions;
 - If the product has been dropped or damaged in any way
 - When the product exhibits a noticeable change in performance.

If you have any questions regarding the service or repair of this machine, call or write to the appropriate repair center location (see "Snap-on Service Center Locations").

Technical questions can be directed to our toll free number at (877) 762-7664 Monday through Friday 9:00 am to 5:00 pm Central Time (U.S. customers only), or email at eorder@snapon.com.

Specific Safety Information

Read this operator's manual carefully before using. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or severe personal injury.

FCC Statement

15.19 Labeling requirements.

This device complies with part 15 of the FCC Rules. 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.

15.21 Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.105 Information to user.

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

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

Specific Absorption Rate (SAR) information:

This product meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

FCC RF Exposure Information and Statement The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. This device was tested for typical body-worn operations with the back of the handset kept 0mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 0mm separation distance between the user's body and the back of the handset.

Body-worn Operation

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 0mm for body worn must be maintained between the user's body, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

IC Statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

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

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The information listed above provides the user with information needed to make him or her aware of a RF exposure, and what to do to assure that this radio operates within the exposure limits.

The device complies with RF specifications when the device used at 0mm from the body

Visual Inspection Tool Safety

- Do not place tool into anything or anywhere that may contain a live electrical charge.
- FOR WALLS: For inspecting inside walls, be sure to shut off the circuit breaker to the whole house before using the

tool behind any of the walls

- FOR PIPES: If you suspect a metal pipe could contain an electrical charge, have a qualified electrician check the pipe before using the tool. Ground circuits, in some cases, can be returned to cast iron pipes and cause them to be charged.
- FOR AUTOMOBILES/HEAVY EQUIPMENT/ MOTORSPORTS: Be sure the automobile, heavy equipment or motorsport equipment is not running during inspection. Metal and liquid under the hood may be hot. Do not get oil or gas on the imager head. Exposure to petroleum-based substances will eventually degrade the imager head covering.

GENERAL USE: Do not use anywhere the unit may come into exposure with hazardous chemicals, electrical charges or moving parts. Such situations may result in serious injury or death.

Included with the BK7000HDLE:

1. Wireless imager handle
2. Quick start guide
3. Power supply with 4 interchangeable power source adapters
4. USB-C to USB-C power cord

Specifications

Description

The BK7000HDLE Wireless Imager Handle connects* to the BK7000 handheld unit via WiFi. This allows for one handed video scope use to maximize workplace efficiencies. This includes remote operation of BK700 features including Picture-in-Picture, LED brightness, change from image to video mode, and start/stop operation.

*Definition of "connects" = stream live video

Specifications

Total Weight..... 0.25 lb. (200g)

Wireless Imager Handle:

Power Supply..... Internal Li-Ion Battery, 3.7V, 3000 mAh

Charge time..... 1 hour (approximately) with provided charger

Charger Input..... 5V DC, 1. Amp

Charger Cord..... 2m, USB-C to USB-C

Length..... 6.70" (170.1mm)

Width..... 1.93" (49mm)

Height.....1.25" (31.7mm)

Run-time on battery..... 2.5 hours (approximately)

Input Voltage.....100-240VAC, 50-60Hz 0.6Amp

Wireless interface..... 2.4/5GHz Wi-Fi - 802.11(a)/(b)/(g)/(n)

Wireless range..... 15 ft. (4.5m)

Operating Temperature..... 32°F to 122°F (0°C to 50°C)

(Batteries will not charge above 113°F (45°C))

Storage Temperature..... -4°F to 140°F (-20°C to 60° C)

77°F (25°C) is ideal for maximum battery life.

Relative Humidity.....5% to 90% non-condensing

A/C Power Supply:

Input Voltage.....100-240VAC, 50-60Hz 0.6Amp

Maximum inrush current 30A @ 115VAC, 60A @ 230VAC

Output voltage 5V DC 2.6Amp Max

No Load Standby power <0.3W

Operating Temperature..... 32°F to 104°F (0°C to 40°C)

Storage Temperature..... 14°F to 167°F (-10°C to 75°C)

Relative Humidity..... 20% to 80% non-condensing

NOTE! The charger and internal batteries are not compatible with any other Snap-on Li-Ion Batteries and chargers.

Introduction



Do not operate the visual inspection tool in explosive atmospheres, such as in the presence of flammable liquids, gases, or combustible dust. This unit may create sparks which could ignite fumes or dust. No responsibility will be taken by Snap-on for any resulting damage to the unit or to the operator if it is used with corrosive, explosive, or otherwise dangerous gas and dust mixtures.



When using the visual inspection tool at the inspection site, make certain that you and the work area is safe for the unit to be used. This is not classified as flameproof or intrinsically safe; therefore, it must not be used where explosion hazard may exist. For complete details on product and operator safety, review the General Safety Information section.

Setup

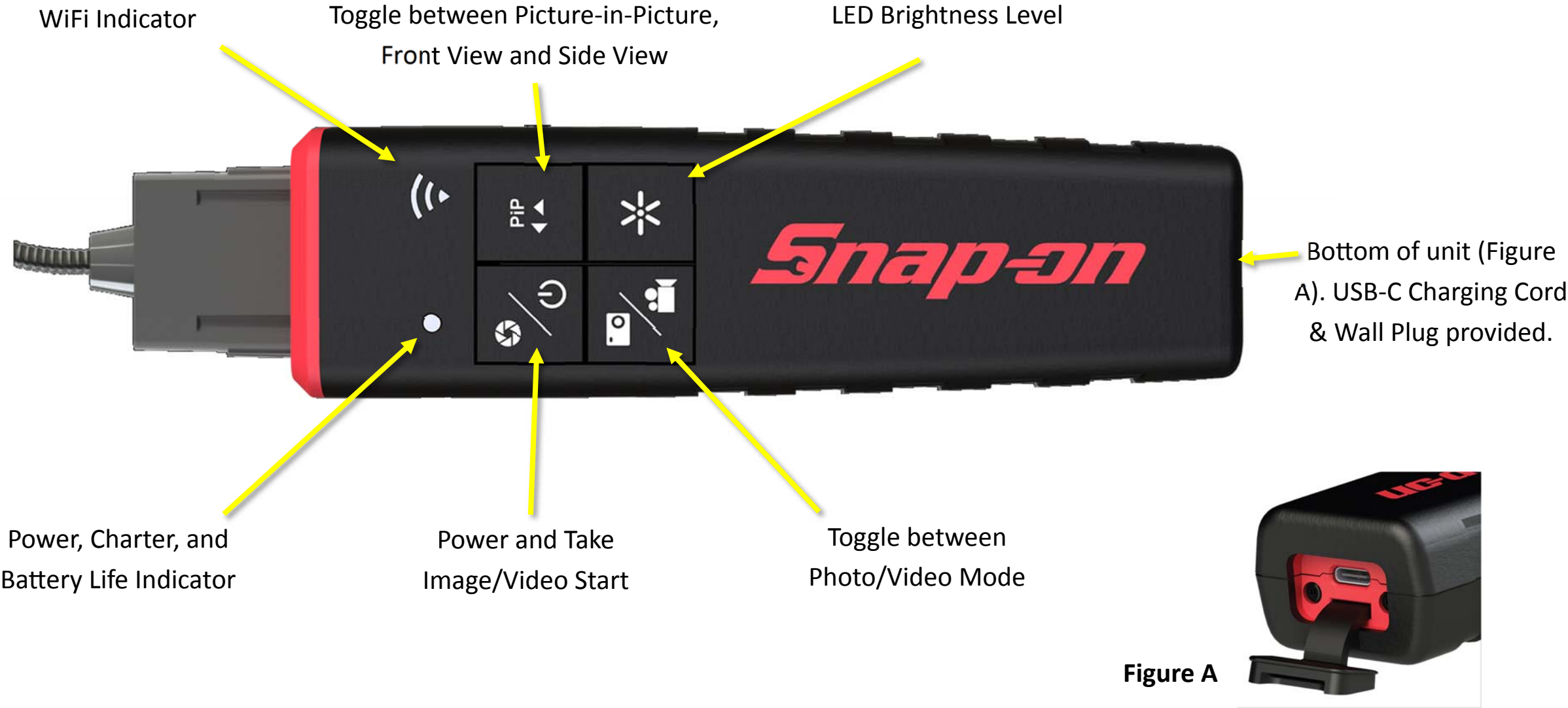
Battery Requirements/Warnings



Daily, before use, inspect the BK7000HDLE and A/C Power Supply and correct any problems. Set up charger according to these procedures to reduce the risk of injury from electrical shock, fire, and other causes and prevent tool and system damage.

Before using the BK7000HDLE for the first time, allow it charge for at least 1.5 hours to ensure that the batteries are fully charged.

BK7000HDLE Feature Outlines



Assembling the Charger

The chargers are supplied with a selection of power outlet adaptors for use in multiple countries. Before first use, select the appropriate adaptor for your country and attach it by aligning the male notches on the back of the adapter with the female notches on the power block then twist clockwise, the adapter will click and lock into place. To switch adapter, push and hold down on the locking tap, located on the power block, and twist counterclockwise to release/open.

Charging the Unit

With dry hands, remove I/O door. Insert the USB-C end of the power cord into the charging port on bottom of the unit and insert the USB-C end into the power block. Ensure that the correct adapter is fitted into the power block and insert the charger into a suitable power outlet to charge unit. When charging is complete remove USB-C cable. Firmly secure I/O door back into place.

NOTICE

The BK7000HDLE will only charge the batteries if the temperature is between 0°C and 45°C (32°F and 113°F). Outside of this temperature range the BK7000HDLE may continue to operate but the batteries will not charge, and the Charge Status LED will be off. When the battery is fully charged, status LED will be illuminated solid green. There is no risk of overcharging the battery. When the battery has been fully charged, the charger automatically switches to retention charging.

CAUTION

Be sure to inspect the power cord and power block for any damages. If there are any broken or worn parts, exposed wires or any damage of this nature, do not use until parts are replaced. Be sure to keep the unit clean; free of oils, grease and dirt, as described in the Maintenance section. This will prevent the unit from slipping out of your hands and will allow proper unit ventilation.

Charging Status

Charge Status	LED Status	Battery Status
Not Charging	LED is OFF	No power to battery
Charging	Green (blinking)	Battery is low
Fully Charged	Green (solid)	Battery is fully charged

Disconnecting and Connecting Imagers

To switch imagers, first, turn the unit off. Then pinch and hold the sides of the connector and pull imager out of the unit. To connect an imager, align the male notches on the imager connector with the female notches on the unit and insert.



Powering Process

No assembly process is required. The units can be powered on by pressing and holding the power button for 2 seconds. The units will power on and the indicator light will illuminate. To turn the units off, press and hold the power button for 2 seconds and the unit will power off. Represented with color on the handle in figure below.




LED Indicators

Power

Off 

Booting Up 

Ready to Connect 

Blinking: Charging 
Solid: Charged

WiFi

 Off

 Blinking:
Connecting

 Solid:
Connected

Initial Pairing of the BK7000HDLE to the BK7000

1. Power on **BK7000** and click on Settings page.
2. Update firmware on **BK7000** (you will need to be connected to WiFi).
3. Power on **BK7000HDLE**.
4. When LED icon is blinking blue on **BK7000HDLE**, device is ready to be paired.
5. After **BK7000** firmware update is complete, scroll down on the main menu and select “Click Here to Pair Handle” on the Device Settings.
6. Identify MAC address on back of **BK7000HDLE**.
7. The **BK7000** will search for all BK7000HDLE units.
8. To pair devices, on **BK7000** “Select Your Handle” screen, select BK7000HDLE MAC

address from step 6.

9. When successfully paired, WiFi LED on handle will be solid blue. **BK7000HDLE** will display full screen image, click image to show BK7000HDLE icon on side bar to verify connection.

Pairing

Without Disconnection

If the handle was NOT disconnected from the BK7000 prior to shutting off the BK7000. The next time the units are powered on, the handle will AUTOMATICALLY be paired with the BK7000.






With Disconnection

If the handle was disconnected from the BK7000 prior to shutting off. Follow these steps:

1. Power on **BK7000HDLE**.
2. When LED icon is blinking blue on **BK7000HDLE**, device is ready to be paired.
3. Identify MAC address on back of **BK7000HDLE**
4. Power on **BK7000** and click on Settings page.
5. Select “Click Here to Pair Handle” on the **BK7000** Device Settings tab.
6. To pair devices, on **BK7000**, select BK7000HDLE MAC address from step 3
7. When successfully paired, WiFi LED on handle will be solid blue, and WiFi icon on

BK7000 will appear  .

Multiple Handles

Multiple handles can be available to be paired with a BK7000. **IMPORTANT: Only one handle can be connected to the BK7000 at a time.** On the “Select Your Handle” screen, the connected handle will be designated by a  and a  icon. Previously paired, but not connected handles will be designated by a  and  icon. To unpair from a handle, press the  button. To switch from the handle imager to an imager plugged into the BK7000. Power off the handle and then select a view mode on the BK7000.

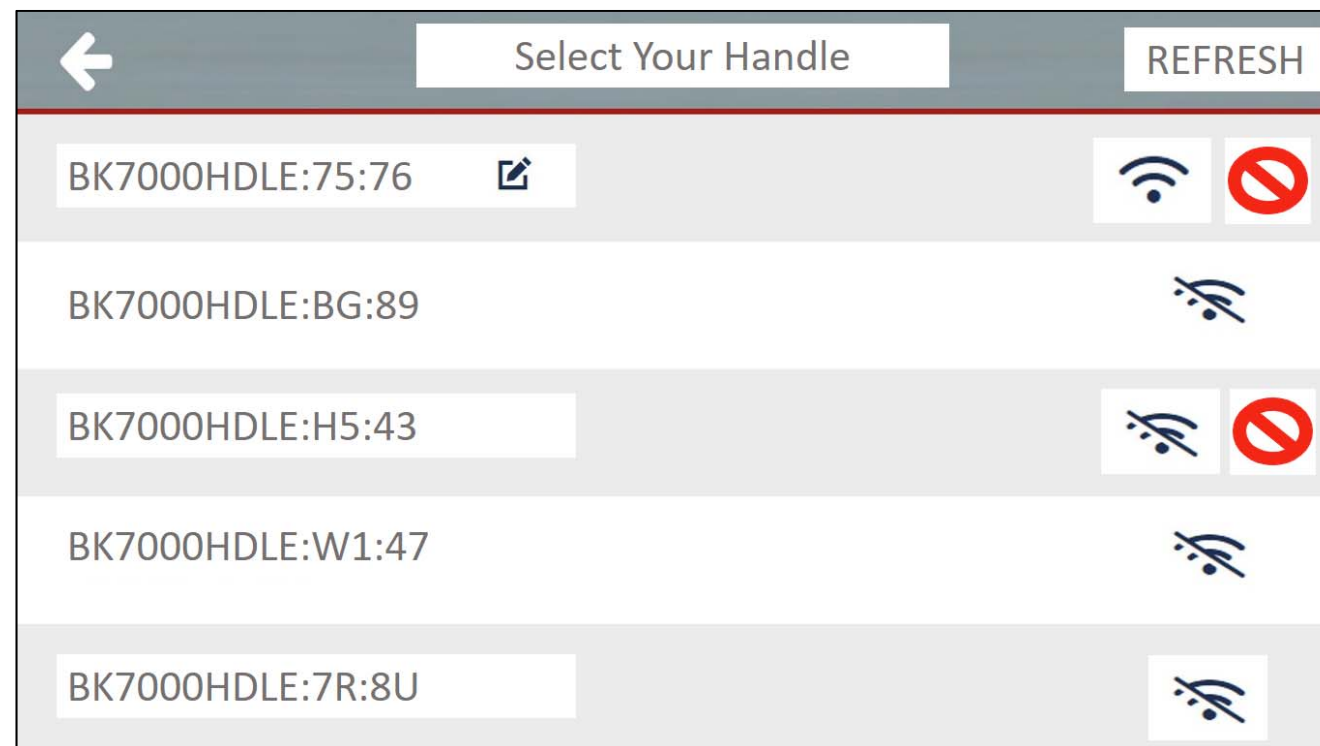
Handle Nomenclature

The last four digits on the back of the handle is the unique MAC address for each handle.

To edit the handle's name, select the  icon, when paired with the handle.

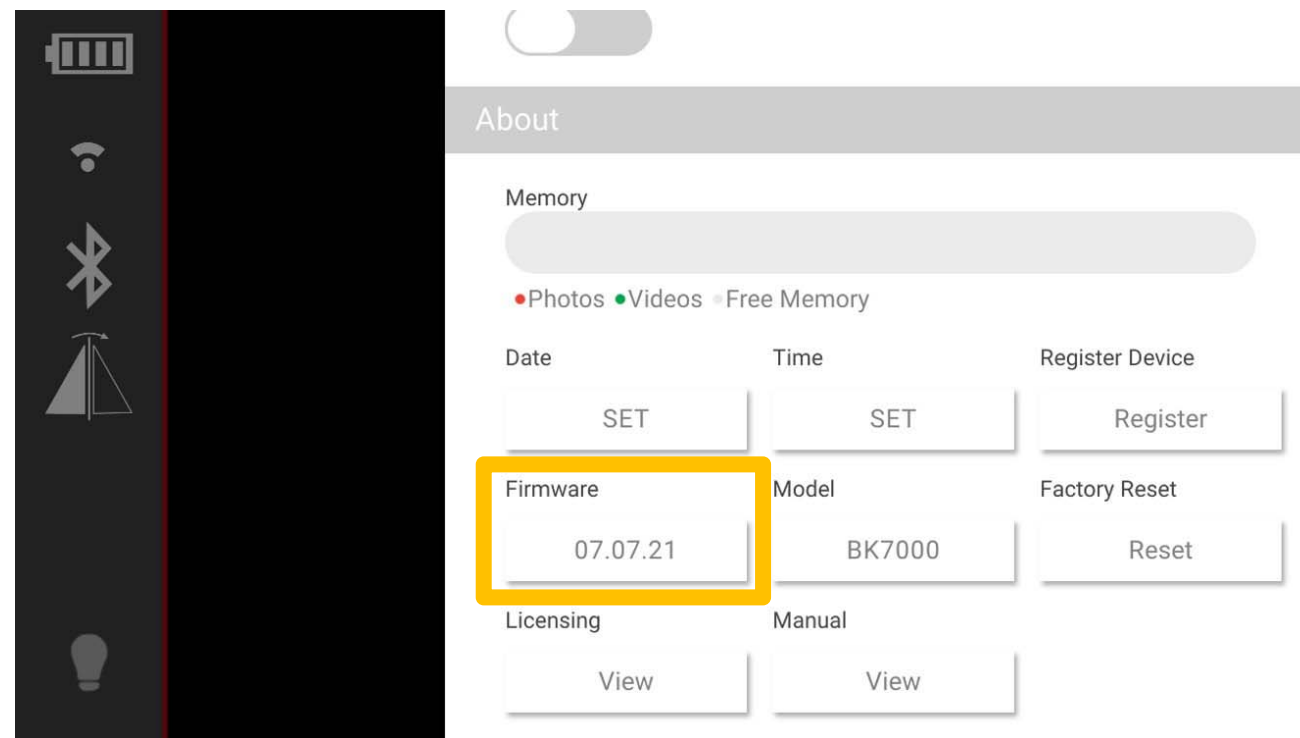
BK7000HDLE:xx:xx is the default.

BK7000HDLE:75:76 in the below picture is paired, and the name can be edited.



Updating the BK7000 Firmware

Firmware on the BK7000 needs to be updated to work with the BK7000HDLE. Must be connected to WiFi during upgrade. Select Settings and scroll down to Firmware.



Operation

Reference page 21 for button overview as needed.

Taking a photo

When connected to the BK7000, click on Camera icon to toggle into “Camera” mode. Next, click on Image icon (above Power icon) to take photo(s).

Taking a video

When connected to the BK7000, click on Video icon to toggle into “Video” mode. Next, click on Image icon (above Power icon) to start video. Click on Image icon again to stop video.

Picture Mode

During either Video or Camera mode, click on the Picture mode icon (below WiFi LED Indicator) to cycle through all three Picture modes.

Option 1 = Front View

Option 2 = Side View

Option 3 = Picture-in-Picture

Imager Light

Under the Picture Mode button, you can increase or decrease the brightness of the imager light. Imager light can be increased up to 10x.

Troubleshooting

SYMPTOM	POSSIBLE REASON	SOLUTION
Display unit does not display image from imager	The imager is not fully inserted into the unit	Connect imager securely to unit
	Damaged imager	Replace imager
	Imager camera covered	Clean imager lens
Units will not switch on	Battery is critically low	Charge unit until battery indicator light is solid green

Battery does not hold charge	Faulty battery	Contact a nearby service center and start the return process.
Units will not charge	Power supply is not plugged in	Check power supply connection and secure to power source.
	Damaged power supply/power cord	Replace power supply.
	Operating temperature is below or above 32°F and 113°F	Place the unit in an environment of temperature 32°F - 113°F and allow it to return to a neutral temperature before charging the unit.

Image on display is frozen	Processor locked up	Cycle power
Charging LEDs flashing red	Faulty battery/unit	Contact a nearby service center and start the return process.

Available Accessories

BK7000ART55– 5.5mm diameter, 36 articulating imager

BK7000-17 – 5.5mm diameter, dual view with Picture-in-Picture

BK7000-38FV - 3.8mm diameter, 36 inch forward view imager

BK7000-38SV - 3.8mm diameter, 36 inch side view imager

The 3.8mm diameter imagers are specifically designed to be able to pass through the glow plug port in a diesel engine. The side view will provide a high definition image of the cylinder walls and image of the valve profile. The forward facing imager will provide a clear image of the piston face and combustion cup.

Warranty

Limited Two (2) Year Warranty Snap-on Tools Company (the "Seller") warrants only to the original purchaser that under normal use, care and service, the Equipment (except as otherwise provided herein) shall be free from defects in material and workmanship for two years from the date of original invoice. SELLER'S OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED SOLELY TO THE REPAIR OR, AT SELLER'S OPTION, REPLACEMENT OF EQUIPMENT OR PARTS WHICH TO SELLER'S SATISFACTION ARE DETERMINED TO BE DEFECTIVE AND WHICH ARE NECESSARY IN SELLER'S JUDGMENT, TO RETURN THIS EQUIPMENT TO GOOD OPERATING CONDITION. NO OTHER WARRANTIES, EXPRESS OR IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY AND ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. This warranty does not cover (and separate charges for parts, labor and related expenses shall apply to) any damage to, malfunctioning, in operability or improper operation of the Equipment caused by, resulting from or attributable to (A) abuse, misuse or tampering;(B) alteration, modification or adjustment of the Equipment by other than Seller's authorized representatives; (C) installation, repair or

maintenance (other than specified operator maintenance) of the Equipment or related equipment, attachments, peripherals or optional features by other than Seller's authorized representatives; (D) improper or negligent use, application, operation, care, cleaning, storage or handling; (E) fire, water, wind, lightening or other natural causes; (F) adverse environmental conditions, including, without limitation, excessive heat, moisture, corrosive elements, or dust or other air contaminants, radio frequency interference, electric power failure, power line voltages beyond those specified for the Equipment, unusual physical, electrical or electromagnetic stress and/or other condition outside of Seller's environmental specifications;(G) use of Equipment in combination or connection with other equipment, attachments, supplies or consumable not manufactured or supplied by Seller; or (H) failure to comply with any applicable federal, state or local regulation, requirement or specification governing emission analyzers and related supplies or consumables. Repairs or replacements qualifying under this Warranty will be performed on regular business days during Seller's normal working hours within a reasonable time following purchaser's request. All requests for Warranty service must be made during the stated warranty period. This Warranty is nontransferable.

Snap-on Service Center Locations

Eastern Repair Center (USA) 6320 Flank Drive Harrisburg, PA 17112 USA Toll Free # - (USA only): (800)-848-5067 Telephone: (717) 652-7914 Fax: (717) 652-7123	Snap-on Tools (Australia) Pty Ltd National Distribution Centre Unit 6/110 Station Road PO Box 663 Seven Hills, NSW 1730 Australia Telephone: (61) 2-9837-9100 Fax: (61) 2-9624-2578 email: sota.webmasters@snapon.com
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Northern Repair Center (USA)

3011 E. RT 176, Dock 8

Crystal Lake, IL 60014

Toll Free # - (USA only): (877) 777-4412

Telephone: (815) 479-6850

Fax: (815) 479-6857

Snap-on Tools Singapore PTE, Ltd.

25 Tagore Lane #01-01

Singapore 787602

Telephone: +(65) 6451-5570

Fax: +(65) 6451-5574

email: esale.sg@snapon.com

Internet: <http://snapon.com.sg>

Western Repair Center (USA)

3602 Challenger Way

Carson City, NV 89706 USA

Toll Free # - (USA only): (888) 762-7972

Telephone: (775) 883-8585

Fax: (775) 883-8590

Snap-on Tools Japan, K.K.

Snap-on, Bahco, and Cartec

Also serving Taiwan and Micronesia

(Distribution Center and Technical Repair Center)

2-1-6 Shinkiba, Koto-ku,

Tokyo, 136-0082 JAPAN

Telephone: +81 3 5534 1280

Fax: +81 3 5534 1284

email: SOJ-INFO@snapon.co.jp

OEM, National Accounts, GSA

Distribution: +81 3 5534 1300

Industrial: +81 3 5534 1281

BAHCD: +81 3 5534 1301

Technical Repair Center: +81 3 5534 1289

Snap-on UK Repair Centre

Snap-on Tools, Ltd.

Telford Way, Kettering

Northants, NN16 8UN ENGLAND

Telephone: 01536 413855

Fax: 01536 410740

Snap-on Tools of Canada Repair Center

7403 48th St. S.E.

Calgary, Alberta T2C 4H6 CANADA

Toll Free #: (866) 824-0525

Telephone: (403) 720-4525

Fax: (403) 720-4524

email: canadianquestions@snapon.com