FLUKE®

BK120

SmartTrace™ Breaker Finder

Users Guide

9/2023, Rev. 1, 8/24 (English)

Introduction

The BK120 is a system to locate breakers in an electrical installation and to detect voltage. The system comprises the Transmitter and the Breaker Finder (the Product).

Contact Fluke

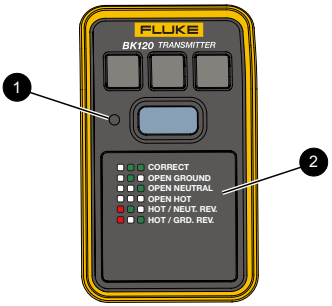
Fluke Corporation operates worldwide. For local contact information, go to our website: www.fluke.com.
To register your product, view, print, or download the latest manual or manual supplement, go to our website. For service information, contact your nearest Fluke dealer.

Product Use

Transmitter

1. For best results, unplug all appliances and equipment on the circuit under test.
2. Plug the Transmitter into the socket and note which indicators light.
3. To determine the wiring, see the diagram on the Product shown for reference in Figure 1.

Figure 1. Transmitter



❶ Red LED illuminates when you push the GFCI test button

❷ Receptacle wiring check

Indicator	Wiring Scenario	Description
▢ ■ ■	CORRECT	Receptacle is wired correctly
▢ ■ ▢	OPEN GROUND	Ground contact is not wired
▢ ▢ ■	OPEN NEUTRAL	Neutral contact is not wired
▢ ▢ ▢	OPEN HOT	Hot contact is not wired
■ ■ ▢	HOT / NEUT.REV.	Hot and neutral wirings are reversed
■ ▢ ■	HOT / GRD.REV.	Hot and ground wirings are reversed

⚠ Caution

Use the Product as a simple instrument to detect nearly all probable common improper wiring conditions. Read the Safety Information that is provided with the product package.

GFCI Test

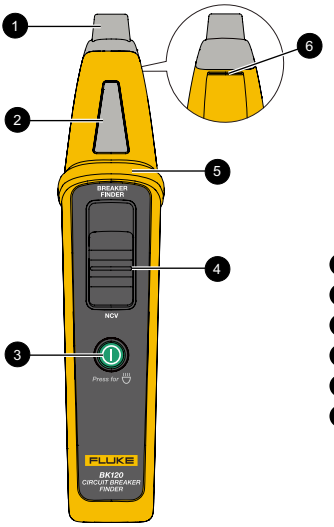
To test a GFCI:

1. Before you plug the Product into a GFCI socket, push the GFCI test button, if applicable, to trip the GFCI socket. If the GFCI does not trip, the socket is faulty and should be replaced.
2. After the GFCI trips, push the RESET button on the GFCI socket.
3. Plug in the Product and push the blue GFCI test button on the Product for a minimum of 6 seconds. As you push the Product button, but before the GFCI trips, the LED to the left of the Product button briefly turns on.

   Once the GFCI trips, all of the LEDs on the Product go out. If the GFCI does not trip, or if any of the LEDs on the Product remain on, there is a problem with the wiring of the socket, the socket itself, or the Product. Consult an electrician to determine the problem.

Breaker Finder

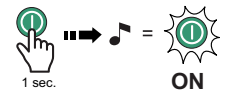
Figure 2. Breaker Finder



1. NCV indication
2. Breaker finder indication
3. Power button
4. Function selector
5. Tactile barrier
6. Flashlight

Power On/Off

Momentarily push ⏻. Listen for a single beep to confirm activation. The Product performs a self-test upon powering ON, emitting beeps and light indications to ensure the proper visual and audio indications. A solid light on ⏻ indicates the Product is active.



Push ⏻ > 1 s to turn the product off. Listen for a double beep to confirm de-activation.

Breaker and Fuse identification

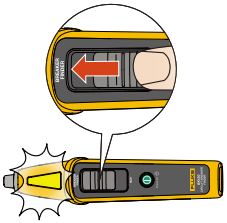
To identify a breaker:

1. Plug the Transmitter into the socket (See Figure 3.).

Figure 3. Transmitter in socket

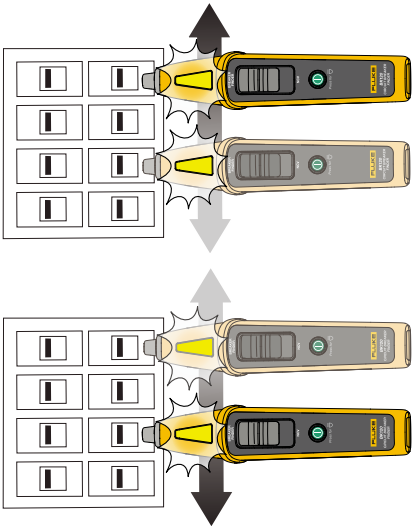
2. Turn ON the Breaker Finder and slide the function selector to BREAKER FINDER position (See Figure 4.).

Figure 4. Turn on the Breaker Finder



3. Hold the Breaker Finder perpendicular to the breakers and scan slowly at the breaker panel with the flat surface of the tip end directly on the circuit breaker. During this scan, it may beep and/or have visual indication at several breakers as it measures the relative signal strength during the first scan process (See Figure 5.).

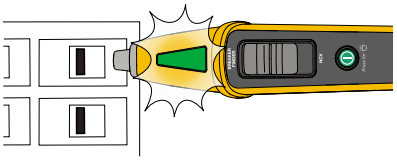
Figure 5.



Note
Inaccurate reading may occur if the tip is placed at any other angle.

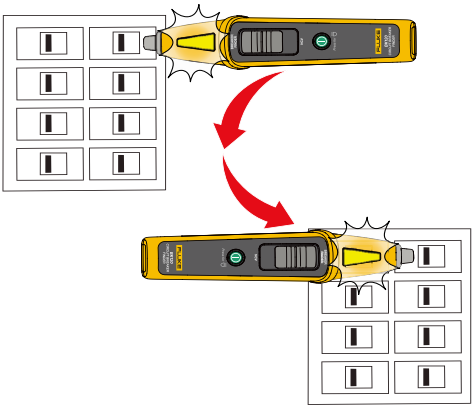
4. Repeat step 3 for the second scan, solid green indication illuminates when the Breaker Finder identifies the breaker that is powering the Transmitter (See Figure 6.).

Figure 6.



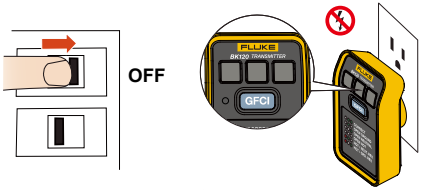
For optimal results or if the Breaker Finder detects two adjacent breakers on the second scan, reset the Breaker Finder, and turn the Breaker Finder 180º (see Figure7). Repeat step 3 and 4.

Figure 7.



5. To confirm you have found the correct breaker, trip off the breaker and check that the Transmitter in the socket is off (See Figure 8.).

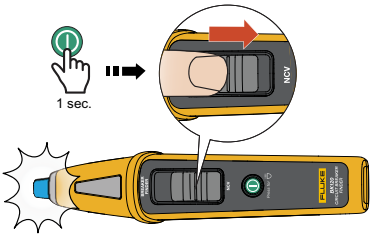
Figure 8.



Non-contact voltage detection

1. Press ⏻ momentarily to turn ON the Product.
2. Slide the switch to NCV position.
3. Put the tip of the Product near an AC voltage until the Product produces a steady glow (purple or red) at the tip and produces a continual single beep when at the AC voltage source (See Figure 9.).

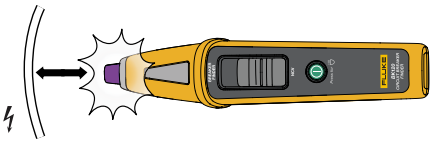
Figure 9.



The Product features dual sensitivity detection –

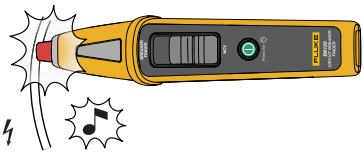
- Proximity to the AC voltage source: Purple (See Figure 10.).

Figure 10.



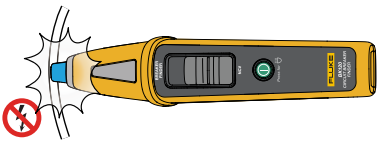
- At the AC voltage source: Beeping red (See Figure 11.).

Figure 11.



- No voltage is detected: Flashing blue (See Figure 12.).

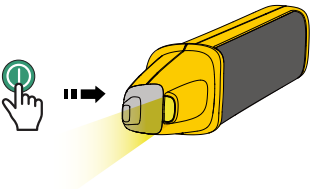
Figure 12.



Flashlight

Push ⏻ momentarily to turn ON the Product and flashlight at the tip is ON. Push ⏻ momentarily again to turn OFF the flashlight (See Figure 13.).

Figure 13. Flashlight



Auto Power Off

After about five minutes of nonuse, the Product automatically powers off to save battery life. The Product emits two beeps when the power automatically turns off. The absence of the light indication at the tip or a continual light flash on ⏻ serves as a visual power-off indication.

Maintenance

Cleaning

⚠⚠ Warning

For safe operation and maintenance of the product:

- **Remove the Product from measurement circuits before you clean the Product.**
- **Never use acid-based detergents or solvent liquids for cleaning.**
- **After cleaning, do not use the Product until the Product is dried completely.**

To clean the Product, use a damp cloth and a mild detergent. DO NOT IMMERSE in liquid.

Product Disposal

Dispose of the Product in a professional and environmentally appropriate manner:

- Delete personal data on the Product before disposal.
- Remove batteries that are not integrated into the electrical system before disposal and dispose of batteries separately.

Battery Replacement (Breaker Finder)

The blinking red indication (trapezoid) at the tip indicates that the batteries need to be replaced.

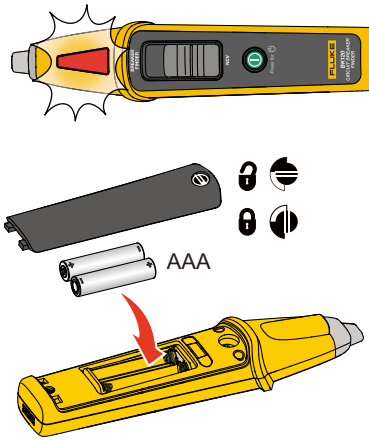
⚠⚠ Warning

To avoid possible electric shock or personal injury:

- **Do not operate the Product with the battery door or portions of the cover removed or loosened.**
- **Remove the batteries if the Product is not used for an extended period of time, or if stored in temperatures above 50 °C. If the batteries are not removed, battery leakage can damage the Product.**

1. Turn the Product over and use a flat-head screwdriver to loosen the battery door screw and remove the door.
2. Replace the batteries with two new AAA (LR03) batteries.
3. Reattach the battery compartment door and fasten the screw to lock position.

Figure 14. Battery Replacement



Specifications

General Safety Information is in the printed Safety Information document that shipped with the Product. More specific safety information is listed where applicable.

Complete specifications are in the printed Safety Information and online at www.fluke.com.

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To obtain warranty service, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). Fluke assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Fluke determines that failure was caused by neglect, misuse, contamination, alteration, accident, or abnormal condition of operation or handling, including overvoltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components, Fluke will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

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