

2 pole gfci breaker wiring diagram

2 pole gfci breaker wiring diagram is a critical topic for electricians, contractors, and homeowners who are focused on electrical safety and code compliance. A 2 pole GFCI breaker provides ground fault circuit interruption protection for circuits requiring 240 volts, commonly found in appliances like electric dryers, water heaters, and air conditioners. Understanding the wiring diagram and installation process is essential for ensuring that the breaker functions correctly and protects against electrical shock hazards. This article explains the components, wiring methods, and safety considerations related to 2 pole GFCI breakers. Additionally, it covers troubleshooting tips, common mistakes to avoid, and compliance with National Electrical Code (NEC) standards. By the end of this guide, readers will have a comprehensive understanding of how to wire and use a 2 pole GFCI breaker effectively and safely.

- Understanding 2 Pole GFCI Breakers
- Components of a 2 Pole GFCI Breaker Wiring Diagram
- Step-by-Step Wiring Instructions
- Safety Tips and Code Compliance
- Troubleshooting Common Issues

Understanding 2 Pole GFCI Breakers

A 2 pole GFCI breaker is designed to protect a 240-volt circuit from ground faults that could cause serious electrical shock or fire hazards. Unlike a standard circuit breaker, a GFCI breaker detects differences between the current flowing in the hot wires and the current returning through the neutral. If

there is an imbalance, which indicates leakage current possibly through a human body, the breaker quickly shuts off power. This type of breaker is essential in wet or damp locations such as laundry rooms, garages, and outdoor circuits.

Because 240-volt circuits use two hot wires, a 2 pole GFCI breaker is required to simultaneously monitor both conductors. This ensures comprehensive protection for appliances and equipment operating at this voltage level. Understanding how these breakers function and how they differ from single pole GFCI breakers is crucial for proper installation and safety.

What is a 2 Pole GFCI Breaker?

A 2 pole GFCI breaker is a circuit breaker that combines overcurrent protection with ground fault detection for a double-pole (240V) circuit. It interrupts power when it senses any ground fault current leakage, protecting users from electrical shock. These breakers are rated for 15, 20, 30, or higher amperage loads depending on the application.

Applications of 2 Pole GFCI Breakers

Common applications include:

- Electric dryers and ranges
- Water heaters
- HVAC equipment
- Outdoor outlets and circuits
- Workshops and garages

These breakers are mandated by NEC in many residential and commercial settings where 240V equipment is installed in damp or wet locations.

Components of a 2 Pole GFCI Breaker Wiring Diagram

A proper 2 pole GFCI breaker wiring diagram includes several key components that work together to ensure safety and functionality. Understanding each component and its role is necessary for correctly wiring the breaker and avoiding common mistakes.

Main Components

The main components involved in the wiring of a 2 pole GFCI breaker are:

- **Two Hot Wires (L1 and L2):** These carry the 240 volts from the electrical panel to the device or outlet.
- **Neutral Wire:** This returns current back to the panel and is essential for the GFCI function.
- **Ground Wire:** Provides a safe path for fault current to reduce shock risk.
- **GFCI Breaker:** The device that monitors current imbalances and trips the circuit.
- **Load and Line Terminals:** The breaker features line terminals for incoming power and load terminals for outgoing circuit wiring.

Understanding the Wiring Diagram Symbols

Wiring diagrams use standard electrical symbols to represent components and connections. Common

symbols include:

- Lines representing wires or conductors
- Squares or rectangles for breakers or devices
- Ground symbols for grounding conductors
- Neutral symbols indicating the neutral wire connection

Recognizing these symbols is essential for interpreting and applying the wiring diagram correctly.

Step-by-Step Wiring Instructions

Proper wiring of a 2 pole GFCI breaker requires attention to detail and adherence to electrical codes. The following steps outline the general process for wiring a 2 pole GFCI breaker in a residential or commercial electrical panel.

Preparation and Safety

Before starting any electrical work, ensure the main power is turned off at the service panel. Use a voltage tester to confirm that no voltage is present in the panel. Wear insulated gloves and use insulated tools to enhance safety while working inside the panel.

Wiring Steps

1. **Identify Circuit Wires:** Locate the two hot wires (L1 and L2), the neutral wire, and the ground wire intended for the circuit.

2. **Connect Line Wires to Breaker:** Attach the two hot wires to the line terminals on the 2 pole GFCI breaker. These are generally labeled and may require tightening screws to secure the conductors.
3. **Connect Neutral Wire:** Connect the circuit neutral wire to the breaker's neutral terminal or pigtail wire, which then connects to the panel's neutral bus bar.
4. **Connect Ground Wire:** Attach the grounding conductor to the panel's grounding bus bar. The GFCI breaker itself typically does not have a ground terminal.
5. **Secure the Breaker:** Snap the 2 pole GFCI breaker firmly into the panel's breaker slots following manufacturer instructions.
6. **Check Connections:** Double-check that all connections are tight and properly seated to prevent loose wiring issues.
7. **Restore Power and Test:** Turn on the main power and test the GFCI breaker using its built-in test button to confirm proper operation.

Safety Tips and Code Compliance

Ensuring safety and compliance with electrical codes is a vital aspect of wiring a 2 pole GFCI breaker. Adhering to the NEC and local codes protects property and lives and facilitates inspections and approvals.

National Electrical Code (NEC) Requirements

The NEC requires GFCI protection for specific 240V circuits in residential and commercial settings. Key code requirements include:

- GFCI protection for outdoor outlets and equipment.
- Mandatory GFCI breakers in garages, basements, crawl spaces, and laundry areas.
- Proper sizing of breakers according to circuit load and wire gauge.
- Use of appropriate breaker models listed for the panel and application.

Additional Safety Considerations

- Always verify wiring with a voltage tester before touching conductors.
- Do not bypass or disable the GFCI protection as it defeats the safety purpose.
- Use wire connectors and terminal screws rated for the conductor size.
- Ensure the panel cover is installed after wiring to prevent accidental contact.
- Consult a licensed electrician if unsure about any step or code requirement.

Troubleshooting Common Issues

Even with proper installation, issues can arise with 2 pole GFCI breakers. Recognizing common problems and their solutions helps maintain safety and functionality.

Breaker Trips Frequently

Frequent tripping is often caused by ground faults, wiring errors, or faulty appliances. To troubleshoot:

- Disconnect all loads on the circuit and reset the breaker.
- Add loads back one at a time to identify faulty devices.
- Inspect wiring connections for looseness or damage.
- Check for moisture or water intrusion near outlets or wiring.

Breaker Does Not Reset

If the breaker refuses to reset, possible causes include:

- Persistent ground fault conditions.
- Damaged breaker internal components.
- Incorrect wiring or reversed neutral and hot wires.

In such cases, verify wiring and replace the breaker if necessary.

No Power to the Circuit

When the breaker is on but no power is delivered:

- Check for loose connections at the breaker and load terminals.
- Test for continuity in the circuit wiring.
- Ensure the panel bus bar is supplying power to the breaker.

Proper diagnosis and repair restore normal function.

Frequently Asked Questions

What is a 2 pole GFCI breaker and where is it used?

A 2 pole GFCI breaker is a circuit breaker that provides ground fault protection for 240-volt circuits, typically used for appliances like dryers, water heaters, and outdoor equipment. It monitors both hot wires and trips the circuit if a ground fault is detected.

How do you wire a 2 pole GFCI breaker correctly?

To wire a 2 pole GFCI breaker, connect both hot wires (usually black and red) to the breaker terminals. Connect the neutral wire to the breaker's neutral terminal if it has one, or to the neutral bus bar. Also, connect the white neutral wire from the circuit to the neutral bus bar in the panel. Finally, connect the breaker's pigtail neutral to the neutral bus bar to provide power to the GFCI sensing circuitry.

Can a 2 pole GFCI breaker protect both 120V and 240V circuits?

A 2 pole GFCI breaker is designed primarily for 240V circuits by monitoring both hot wires. It can protect circuits that use two hot wires without a neutral. For 120V circuits requiring GFCI protection, a single pole GFCI breaker is typically used.

What color codes are used in wiring a 2 pole GFCI breaker?

Typically, the two hot wires are black and red, which connect to the two poles of the breaker. The neutral wire is white and connects to the neutral bus bar and the breaker's neutral terminal (if present). Ground wire is green or bare copper and connects to the ground bus bar.

Is it necessary to connect the GFCI breaker's neutral pigtail wire in a 2 pole GFCI breaker?

Yes, the neutral pigtail from the GFCI breaker must be connected to the neutral bus bar in the panel. This connection powers the internal GFCI sensing circuitry and allows it to detect ground faults accurately.

Where can I find a wiring diagram for a 2 pole GFCI breaker installation?

Wiring diagrams for 2 pole GFCI breakers are typically available in the breaker's installation manual or manufacturer's website. Additionally, electrical code books and online electrical forums provide helpful diagrams and step-by-step instructions.

Additional Resources

1. *Understanding GFCI Breakers: A Comprehensive Guide*

This book offers an in-depth explanation of Ground Fault Circuit Interrupters (GFCIs), including their function, types, and installation processes. It covers wiring diagrams for both single and two-pole GFCI breakers, making it an essential resource for electricians and DIY enthusiasts. The detailed illustrations help readers grasp complex wiring configurations with ease.

2. *Residential Electrical Wiring: Two-Pole Breakers and GFCI Protection*

Focused on residential settings, this book provides step-by-step instructions for wiring two-pole breakers with GFCI protection. It includes practical diagrams and troubleshooting tips to ensure safe

and code-compliant installations. The book also discusses the importance of GFCI devices in protecting homes from electrical hazards.

3. Electrician's Handbook: Wiring Diagrams for GFCI and Circuit Breakers

This handbook is a go-to reference for professionals needing clear, precise wiring diagrams for various circuit breakers, including two-pole GFCI models. It explains the electrical principles behind GFCI technology and how to correctly integrate these breakers into existing electrical panels. The book also addresses common wiring mistakes to avoid.

4. DIY Electrical Wiring: Installing Two-Pole GFCI Breakers Safely

Perfect for homeowners and DIYers, this guide breaks down the complexities of installing two-pole GFCI breakers into manageable steps. It provides easy-to-follow wiring diagrams and safety precautions, ensuring readers can confidently upgrade their electrical systems. The book also highlights code requirements and inspection tips.

5. Advanced Electrical Wiring: GFCI Breakers and Circuit Protection Techniques

Designed for advanced electricians and students, this book dives deeply into the technical aspects of GFCI breakers and their wiring. It includes complex wiring diagrams, fault analysis, and protective relay coordination, focusing on two-pole breaker configurations. The text is supplemented with real-world case studies to enhance understanding.

6. National Electrical Code (NEC) and GFCI Breaker Installation Guide

This guide aligns GFCI breaker wiring practices with the latest National Electrical Code standards. It explains how to properly wire two-pole GFCI breakers to comply with safety regulations and pass inspections. The book is a valuable tool for ensuring installations meet legal and safety requirements.

7. Electrical Panel Upgrades: Adding Two-Pole GFCI Breakers

A practical manual for upgrading older electrical panels by installing two-pole GFCI breakers, this book covers everything from planning to execution. It provides wiring diagrams, compatibility considerations, and tips for working safely within existing panels. The book also discusses common challenges and solutions during upgrades.

8. *Smart Home Electrical Systems: Integrating GFCI Breakers*

This book explores the integration of GFCI breakers, including two-pole variants, into modern smart home electrical systems. It covers wiring diagrams, automation compatibility, and enhanced safety features. The text also highlights how GFCI technology works alongside other smart devices to protect homes.

9. *Troubleshooting GFCI Breaker Wiring and Electrical Faults*

Focused on diagnosing and fixing wiring problems with GFCI breakers, this book offers practical advice and detailed diagrams for two-pole breaker troubleshooting. It helps readers identify common faults, interpret wiring diagrams accurately, and implement effective repairs. The guide is ideal for both beginners and experienced electricians aiming to resolve GFCI issues quickly.

2 Pole Gfci Breaker Wiring Diagram

Find other PDF articles:

<https://www-01.massdevelopment.com/archive-library-310/files?ID=VoM92-4705&title=from-the-heart-therapy-services.pdf>

2 pole gfci breaker wiring diagram: Electrical standards reference manual United States. Occupational Safety and Health Administration. Office of Training and Education, 1987

2 pole gfci breaker wiring diagram: Black & Decker The Complete Guide to Wiring, 5th Edition Creative Publishing International, 2011-05 The Complete Guide to Wiring has been America's very best-selling consumer wiring book for more than a decade, with previous editions selling more than 1 million copies. This fifth edition has been updated to comply with 2011-2013 Electrical Codes. It also includes an all new Home Automation chapter, as well as major revisions to lighting and ventilation equipment hookups and new material on working with conduit and raceways.

2 pole gfci breaker wiring diagram: Black & Decker Complete Guide to Wiring, 6th Edition Editors of Cool Springs Press, 2014-05-15 DIVThe best DIY wiring book on the market . . . six times over./divDIV/divDIVBlack & Decker The Complete Guide to Wiring has led the pack as the United Statesâ€™™ best-selling consumer wiring book for more than a decade now, with previous editions selling over one million copies collectively. Simply put, you wonâ€™™t find a more complete and up-to-date book on home wiring: from basic skillsâ€™™including an overview of electricity and wiring safety; wire, cable, and conduits; boxes and panels; switches; and receptaclesâ€™™to foolproof circuit maps for 30 common wiring set-ups and step-by-step walkthroughs of every essential home wiring and electrical repair project, this book teaches you everything you need to know. Now in its sixth edition, it has most importantly been updated to comply with 2014â€™™2017 National Electric Codes, but in addition, nearly 1,000 accompanying photos offer up-to-date depictions of modern

materials and fixtures. Complete with the most current wiring information available today, and presented in our long-renowned, fully illustrated how-to format, Black & Decker The Complete Guide to Wiring (6th Edition) guarantees you'll never be caught in the dark./div

2 pole gfci breaker wiring diagram: *Building Technology* Benjamin Stein, 1996 The complete guide to building technology This comprehensive guide provides complete coverage of every aspect of the building technologist's profession. It details design and installation procedures, describes all relevant equipment and hardware, and illustrates the preparation of working drawings and construction details that meet project specifications, code requirements, and industry standards. The author establishes procedures for professional field inspections and equipment operations tests, provides real-world examples from both residential and nonresidential construction projects, and makes specific references to code compliance throughout the text. This new edition incorporates changes in building codes, advances in materials and design techniques, and the emergence of computer-aided design (CAD), while retaining the logical structure and helpful special features of the first edition. More than 1,100 drawings, tables, and photographs complement and illustrate discussions in the text. Topics covered include: * Heating, ventilating, and air conditioning systems-equipment and design * Plumbing systems- equipment and design * Electrical and lighting systems-equipment and design * Testing, adjusting, and balancing procedures for all building systems * Every aspect of the building technologist's profession, from the creation of working drawings through on-site supervision and systems maintenance Extensive appendices include conversion factors; duct design data; test report forms for use in field work; design forms and schedules for electrical, HVAC, and plumbing work; and more.

2 pole gfci breaker wiring diagram: *Electrical Engineering Problems in the Rubber and Plastics Industry* , 1973

2 pole gfci breaker wiring diagram: *Black & Decker Advanced Home Wiring* Editors Of Creative Publishing, 2012-06-15 Current with Codes through 2014 A carefully selected group of home wiring projects that goes beyond the basics of adding a receptacle or rewiring a lamp. With the information in this book you can take your skill in working with electrical systems to a new level. Projects include: adding a stand-alone, direct-current circuit powered by the sun; installing an automatic standby power system; replacing a main service panel; grounding and bonding your electrical system; installing a radiant flooring system; and working with 240-volt and three-phase power.

2 pole gfci breaker wiring diagram: *Black and Decker Advanced Home Wiring Updated 6th Edition* Editors of Cool Springs Press, 2024-06-04 Take on advanced wiring projects with confidence with up-to-date advice and photo-illustrated step-by-step instructions from a trusted brand. Equipped to comply with the 2023-2026 electrical codes and chock-full of information that's hard to find online, BLACK+DECKER Advanced Home Wiring, Updated 6th Edition, gives you an in-depth look at more sophisticated products and more advanced projects in home wiring. Some of these projects include: A step-by-step demonstration of the right way to wire a three-way switch in any situation A closer look at "available neutral" requirements and how they impact traditional wiring configurations Information on weatherproof boxes and conduit A primer on three-phase power A guide to 240-volt circuitry that eliminates all the confusion These are higher-level projects, but ones that offer high rewards when they are done right. You'll also find: Wiring safety: No matter what you do, safety always come first. Learn about different safety procedures before starting your advanced home wiring project. Planning your project: Where do you start? What equipment do you need? What room or rooms are you planning on wiring? Go through a planning checklist to ensure your wiring will be the best it can be. Wiring kitchens and room additions: What is different about wiring a kitchen or a room addition compared to, say, a living room? Find out before you start on it. Circuit maps: What are some common household circuits? How do you replace a service panel? What about installing a transfer switch? How does one troubleshoot? You can find the answers to these, as well as other important questions, in this edition. Whether you're trying to find the right specialty switch or learn more about breakers, BLACK+DECKER Advanced Home Wiring has it all. With this

edition, you'll master the art of advanced home wiring.

2 pole gfci breaker wiring diagram: Black & Decker The Complete Guide to Wiring, Updated 7th Edition Editors of Cool Springs Press, 2017-12-01 BLACK+DECKER's latest edition of the best-selling home-improvement book in North America for more than a decade is completely updated to conform to 2017-2020 national electrical codes. For more than ten years, BLACK+DECKER The Complete Guide to Wiring has been the best-selling home wiring manual in North America. Now with more than two million copies in print, this is the home reference book more DIYers choose than any other for many reasons. As the most current wiring book on the market, you can be confident that your projects will meet national wiring codes. You'll also spend more time on your project and less time scratching your head thanks to more than 800 clear color photos and over 40 diagrams that show you exactly what you need to know about home electrical service; all the most common circuits, all the most-needed techniques, all the most essential tools and materials. The information in this book has been created and reviewed by professional electricians under the watchful eye of the experts at BLACK+DECKER. You can find plenty of articles and videos about wiring online or in other publications, but only The Complete Guide to Wiring has passed the rigorous test to make it part of The Best DIY Series from the Brand You Trust.

2 pole gfci breaker wiring diagram: Black & Decker Advanced Home Wiring, Updated 4th Edition Editors of Cool Springs Press, 2015-02-09 Get all of the information you need to complete home wiring projects and make sure they are up to code, even for solar power collection! BLACK+DECKER Advanced Home Wiring contains a carefully selected group of home wiring projects that goes far beyond the basics of adding a receptacle or rewiring a lamp. Take your skill in working with electrical systems to a new level. Projects include adding a stand-alone, direct-current circuit powered by the sun; installing an automatic standby power system; replacing a main service panel; grounding and bonding your electrical system; installing a radiant flooring system; and working with 240-volt and three-phase power. There are also updated circuit maps to show available neutral, information on AFCI-protected service panels, and crucially important changes in GFCI protection codes. All projects include clear photos and are current with the 2014-2017 National Electrical Code.

2 pole gfci breaker wiring diagram: Black & Decker Advanced Home Wiring, 5th Edition Editors of Cool Springs Press, 2018-01-02 Newly revised and updated, a fifth edition of the popular DIY wiring guide presents high-level projects and step-by-step demonstrations that conform to the latest national electrical codes.

2 pole gfci breaker wiring diagram: National Electrical Code Blueprint Reading Kenneth L. Gebert, 1980

2 pole gfci breaker wiring diagram: Electrical Wiring Ray C. Mullin, 1998 Students can learn all aspects of residential wiring and how to apply them to the wiring of a typical house from this, the most widely-used residential wiring text in the country. It's loaded with more examples, photos, illustrations and wiring diagrams than any other textbook. Accurate and comprehensive, it covers just about every residential wiring task an instructor may wish to cover and students might need to know. Students learn safe practices required by OSHA and methods and materials required by the 1999 NEC all within an applied on-the-job context.

2 pole gfci breaker wiring diagram: The Complete Photo Guide to Home Improvement Creative Publishing International, Black & Decker Corporation (Towson, Md.), 2001 Step-by-step instructions and more than 1,700 photographs explain how to complete a variety of home improvement projects.

2 pole gfci breaker wiring diagram: Oversight Hearings on the Occupational Safety and Health Act: Hearings held in Washington, D.C., April 17, 21, 23; May 7; September 10; november 4' December 8, 1975; and Waterbury, conn., May 3, 1975 United States. Congress. House. Committee on Education and Labor. Subcommittee on Manpower, Compensation and Health and Safety, 1976

2 pole gfci breaker wiring diagram: IEEE Conference Record of 1973 Eighth Annual Meeting of the IEEE Industry Applications Society IEEE Industry Applications Society. Annual

Meeting, 1973

2 pole gfci breaker wiring diagram: *Conference Record, Industry Applications Society, IEEE-IAS Annual Meeting (1981)* IEEE Industry Applications Society, 1973

2 pole gfci breaker wiring diagram: Electrical Wiring, Residential Ray C. Mullin, 1990

2 pole gfci breaker wiring diagram: Electrical Wiring: Industrial Stephen L. Herman, 2015-09-10 The fifth Canadian edition of *Electrical Wiring: Industrial* is based on the 2015 Canadian Electrical Code. Beyond an accurate interpretation of CEC requirements, the successful completion of any wiring installation requires the electrician to have a thorough understanding of basic electrical principles, a knowledge of the tools and materials used in installations, familiarity with commonly installed equipment and its specific wiring requirements, the ability to interpret electrical construction drawings, and a constant awareness of safe wiring practices. *Electrical Wiring: Industrial* builds on the knowledge and experience gained from working with the other texts in the Nelson Education electrical wiring series and related titles. The basic skills developed in previous applications are now directed to industrial installations. The industrial electrician is responsible for the installation of electrical service, power, lighting, and special systems in new construction; for the changeover from old to new systems in established industrial buildings; for the provision of additional electrical capacity to meet the growth requirements of an industrial building; and for periodic maintenance and repair of the various systems and components in the building.

2 pole gfci breaker wiring diagram: *Oversight Hearings on the Occupational Safety and Health Act* United States. Congress. House. Committee on Education and Labor. Subcommittee on Manpower, Compensation and Health and Safety, 1976

2 pole gfci breaker wiring diagram: Electrical Safety Code Manual Kimberley Keller, 2010-07-19 Safety in any workplace is extremely important. In the case of the electrical industry, safety is critical and the codes and regulations which determine safe practices are both diverse and complicated. Employers, electricians, electrical system designers, inspectors, engineers and architects must comply with safety standards listed in the National Electrical Code, OSHA and NFPA 70E. Unfortunately, the publications which list these safety requirements are written in very technically advanced terms and the average person has an extremely difficult time understanding exactly what they need to do to ensure safe installations and working environments. *Electrical Safety Code Manual* will tie together the various regulations and practices for electrical safety and translate these complicated standards into easy to understand terms. This will result in a publication that is a practical, if not essential, asset to not only designers and company owners but to the electricians who must put compliance requirements into action in the field. - Best-practice methods for accident prevention and electrical hazard avoidance - Current safety regulations, including new standards from OSHA, NEC, NESC, and NFPA - Information on low-, medium-, and high-voltage safety systems - Step-by-step guidelines on safety audits - Training program how-to's, from setup to rescue and first aid procedures

Related to 2 pole gfci breaker wiring diagram

2 - 1525 2 3 1596

2 - 2 2 1. ** **

2 31 - 2 31 2147483648 x n x n

- 2011 1

meaning - Difference between 二 and 两? - Chinese Language 2. In ordinal, decimal numbers and fractional numbers, uses "二" but not "两". 3. When used with normal counter word, for single digit number, uses "二" but not "两". For

2 - 2 Anomalous Coffee Machine 2

000000v0.1.0.100000000000

2025 000 000000000000000000 3 days ago 2025001100000DIY0000000000000000000000 0000000000
0000~

0000000000000000000000000000 00000000IP00000000002.2.2.2000000000000000000000000000 000
0000000000000000

0000 0000000**byrut**000000_0000 byrut.rog0000 0000000byrut000000

0000000 **Gemini flash 2.5** 000 - 00 gemini 2.0 flash000000: 000000000000000000000000000000 00

00Gemini 2.5 Flash0000000000000000000000agent ide000000

Related to 2 pole gfci breaker wiring diagram

Ground-Fault Protection and the Multi-Wire Branch Circuit: A Troubled Marriage (Electrical Construction & Maintenance1y) The multi-wire branch is here to stay; so is ground fault protection. But we should unite these technologies only when it's a good match. Ground-fault protection and the multi-wire branch circuit

Ground-Fault Protection and the Multi-Wire Branch Circuit: A Troubled Marriage (Electrical Construction & Maintenance1y) The multi-wire branch is here to stay; so is ground fault protection. But we should unite these technologies only when it's a good match. Ground-fault protection and the multi-wire branch circuit

Back to Home: <https://www-01.massdevelopment.com>