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Hey there! Youve come to the right place if youre curious about measuring DC voltage with a multimeter. Im here to walk you through this essential skill step by step. Heres how: Step 1: Set your multimeter to the appropriate voltage range; start higher and adjust if unsure. Step 2: Attach the red probe to the positive point and the black probe to the negative. Step 3: Check the display for the voltage reading; it should be close to the expected value of the power source. Step 4: Adjust the multimeters range when switching to batteries with different voltages for accurate readings. In this guide, Ill explain everything you need to know about measuring DC voltage. Ill also share some handy troubleshooting tips. So, grab your multimeter, and lets dive into the world of DC voltage measurement together! Lets break down what DC Voltage means in a way thats easy to get. DC, or Direct Current Voltage, is about steady and consistent power flow. Think of it as the energy you get from batteries or solar panels. In the grand scheme of things, youve got two main types of electrical energy AC and DC. AC is the alternating current you get from your wall sockets, where the flow of electricity changes direction periodically. But DC? Thats your constant, one-direction flow, like what youd get from a car battery or those rooftop solar panels. And let me tell you, understanding the difference between these two is super important, especially when youre tinkering with electrical projects. It helps you choose the right tools and use them as safely and effectively as possible. So next time youre powering up a project, remember the steady, reliable nature of DC voltage it might be the perfect fit for your needs. RELATED What is Live Wire? (Ultimate Guide) If youve ever needed to measure the voltage of a battery or any DC (Direct Current) source, then knowing how to use a digital multimeter accurately is a must. Step 1: Preparing the Multimeter Make sure the multimeter is set for voltage measurement. For instance, if youre measuring a 9-volt battery, set the dial to a range that covers it like 20 volts.Video | 1929fordhotrod Start higher and adjust as needed if youre uncertain about the voltage. Step 2: Connecting the Probes Connect the multimeter probes to your power source. Remember, red is for positive, and black is for negative.Video | 1929fordhotrod If the reading comes down negatively, switch them around. Step 3: Reading the Voltage Observe the voltage reading. For a 9-volt battery, for instance, it should show something close to 9 volts.Video | 1929fordhotrod The battery is slightly depleted if its a bit off, like 8.6 volts. Step 4: Adjusting the Range for Different Batteries If you switch to a different type of battery, like a double-A, you might need to adjust the range.Video | 1929fordhotrod I changed it to 2 volts for a 1.5-volt double-A battery. And there you have it. Measuring DC voltage might seem daunting at first, but its a breeze with these steps. Remember, safety first, and always double-check your settings. Happy measuring! RELATED How to Use a Multimeter (Basic Guide for Beginners) Lets dive into some troubleshooting tips when measuring DC voltage with a multimeter think of it a handy guide to avoid those little slip-ups that can happen to anyone. ProblemTroubleshooting TipsIncorrect Dial SettingsAlways double-check that the multimeter is set to DC voltage (V with a straight line). Its easy to mistakenly set it to resistance or AC voltage, leading to nonsensical readings.Improper Probe ConnectionsEnsure probes are fully inserted: black to COM and red to V . Loose connections can cause erratic readings.Misinterpretation of ReadingsDont be alarmed by a negative reading; its likely due to reversed probes. Switch them around for an accurate reading. Positives should be on the higher potential point, and negatives should be on the lower.Starting Voltage SettingBegin with a higher voltage setting and then adjust downward if necessary, especially if the voltage range is unknown. This approach prevents blowing a fuse, a lesson I learned the hard way.Condition of ProbesRegularly inspect the probes for damage or wear. Faulty probes not only give inaccurate readings but are also a safety risk. Replacing them when needed is essential for reliable and safe voltage measurements.Understanding the ReadingsRemember, the goal is to understand the meaning behind the reading in the context of your project. If something seems off, dont hesitate to recheck your setup or start the measurement process again. Patience and attention to detail are key in these situations. Remember, measuring voltage isnt just about getting a reading; its about understanding what that reading means in the context of your project. RELATED Can You Hammer in a Screw? (A Handyman Answers) Lets chat about keeping your multimeter in great condition. Maintaining this tool is crucial, not just for its longevity but also for your safety and the accuracy of your readings. Ive picked up a few tricks Id love to share over the years. First things first, keep your multimeter clean. Dust, dirt, and grime can mess with the accuracy. I usually use a soft, dry cloth to wipe the exterior. Suppose youre dealing with stubborn dirt; a bit of isopropyl alcohol on a cloth does wonders. Just avoid harsh chemicals that can damage the screen or casing.Multimeters run on batteries, and we know what old batteries can do. They leak and corrode, which is bad news for any device. I check mine periodically and replace them if they run low or every year or so, even if theyre not dead. This proactive step saves a lot of grief later.Your probes are as important as the multimeter itself. I inspect mine regularly for any damage or wear. Frayed wires or damaged tips can lead to inaccurate readings or safety hazards. If you spot any damage, dont hesitate to replace them.How you store your multimeter matters a lot. I keep mine in a case when not in use. This protects it from dust, moisture, and accidental drops. Even a dedicated drawer or shelf is better than leaving it open.Pushing your multimeter beyond its limits is asking for trouble. I always make sure not to exceed its voltage or current ratings. This not only prevents damage but also keeps you safe.For the pros out there, calibration is key. Even if youre just a hobbyist, its good to know that your readings are accurate. Professional calibration is recommended every year or two, depending on how often you use it.Lastly, handle your multimeter with care. Rough handling can mess up its internal components. Ive learned this the hard way dropping a multimeter can knock something loose inside, leading to frustrating inaccuracies. Remember these; your multimeter will be a trusty companion for years. RELATED How to Use a Cen Tech Multimeter? (7 Function Guide) Whats the Best Way to Measure Voltage in Sensitive Electronics?Use a digital multimeter with high input impedance, start with the highest voltage range, and reduce gradually. Ensure the device is off, if possible, to prevent damage. Can Multimeters Be Used to Diagnose All Types of Electrical Problems?While versatile, multimeters cant diagnose complex circuit board faults, high-frequency signal issues, or digital circuit problems. Specialized tools may be needed for these tasks. How Do Environmental Factors Affect Multimeter Readings?High temperatures, humidity, and electromagnetic interference can affect readings. Use the multimeter in a controlled environment and protect it from extreme conditions. Whats the Lifespan of a Multimeter and How Does Usage Affect It?The lifespan varies based on quality, usage, and maintenance. A well-maintained multimeter can last over a decade, but harsh conditions and heavy use can shorten its life. Are There Special Considerations When Using a Multimeter on a Car Battery?Set the multimeter to the correct DC voltage range, connect probes correctly to the battery terminals, and be cautious of sparks due to explosive gases emitted by batteries. RELATED What is Live Wire? (Ultimate Guide) Organizations: Books: Website Resources: Video References: 1929fordhotrod About Sam OrlovskyCertifications: B.E.E. Education: University Of Denver - Electric Engineering Lives In: Denver Colorado Electrical engineering is my passion, and Ive been in the industry for over 20 years. This gives me a unique ability to give you expert home improvement and DIY recommendations. Im not only an electrician, but I also like machinery and anything to do with carpentry. One of my career paths started as a general handyman, so I also have a lot of experience with home improvement I love to share. | Reach Me Are you having issues with a particular outlet or plug in your home? Does it fail to power your large 240V appliances, or does it cause these appliances to develop electrical faults?If yes, then you need to test that it works with the right amount of voltage, as well as the status of its circuit.A lot of people dont know how to do these, so we make this information available to you.Lets get right in.To test 240 voltage, you needA multimeter Multimeter probes Rubber insulated glovesIdentify the outlet you wish to test, set your multimeter to the 600 AC voltage range, and place your multimeter probes into each of the two identical openings on the outlet. If the outlet provides 240 volts of current, the multimeter is also expected to show a 240V reading.There is a lot more to know about testing 240 volts with the multimeter and we will get right into them.The first step you always have to take before testing a hot electrical wire or component is to safeguard yourself from fatal electric shocks.Generally, you wear rubber insulated gloves, put on safety goggles, and ensure that the multimeter leads dont come in contact with each other during the test.One additional measure is to hold both multimeter probes in one hand to prevent electricity from flowing through your whole body, just in case.Once all the safety measures have been carried out, you proceed to the next step.Identify The 240V Plug or OutletFor your diagnosis to be accurate, you want to make sure that you are testing an actual 240V electrical component.Most of the time, these are usually specified within manuals or country-wide blueprints of electrical systems.For instance, the United States uses 120V as a standard for most appliances, with only large appliances like air conditioners and washing machines requiring high 240V current.Regardless, this isnt wholly reliable in knowing if an outlet is truly 120V or 240V. Thankfully, there are other methods.One way to physically identify an outlet is to check if its associated circuit breaker is double-pole, as this is used within 240V systems.Another way is to check its external features.A 240-volt plug is usually bigger than a 120V outlet and generally features three slots; two vertical slots that are of the same size and a third slot in the shape of an L.The two identical slots supply 120 volts each, with this adding up to 240V, while the third slot holds neutral wiring.Sometimes, the 240V configuration comes with a fourth slot shaped in a semi-circle. This is a ground connection to safeguard you from electrical shocks.On the other hand, while testing 120V, you usually have three slots that are not identical. You have a semi-circle, a long vertical slot, and a short vertical slot.Comparing these will help you visually determine whether the outlet works with 240 volts or not. If it does, move to the next step.Plug Probes Into MultimeterTo measure voltage, you plug the black negative multimeter probe in the port labeled COM or -, and plug the red positive probe in the port labeled VmA or +.Set The Multimeter To The 700 ACVThere are two types of voltage; DC voltage and AC voltage. Your home uses AC voltage, so this is what we set the multimeter to.On multimeters, AC voltage is represented by VAC or V~ and you also see two ranges in that section.The 700VAC range is the appropriate setting to measure 240V, as it is the closest higher range.If you use the 200VAC setting to measure 240V, the multimeter presents you with an O.L error, which signifies overload. Simply put the multimeter in the 600VAC limit.Insert Multimeter Leads In 240V OutletNow, you simply insert your red and black leads into each of the identical slots of your wall outlet.Make sure they make contact with metal components on the inside of the slots to ensure proper diagnosis.At this stage of our test, the multimeter is expected to present you with voltage readings.With a fully-functional 240V outlet, the multimeter presents you with a reading between 220V and 240V.If your value goes below this range, then the outlet isnt supplying enough voltage to power 240V appliances.That may explain some of the electrical issues you are having with appliances not working.Alternatively, if the outlet shows you a reading above 240V, then there is more voltage than required, which may damage your appliances.If you have some electrical devices that blew when plugged into the socket, you have your answer.Additionally, you can check our video tutorial on the topic here:There are other ways you may insert your multimeter probes into the outlet to make a more specific diagnosis.Here, you determine which of the hot slots is having a problem and also whether there is a short within the circuit.Remember that the two identical live slots supply 120 volts each. Set the multimeter to the 200VAC limit for this diagnosis.Now, you place the red multimeter lead into one of the live slots and the black lead into the neutral slot.If you have four slots, you may place the black lead into the ground slot instead.If the slot supplies the right amount of voltage, you expect to get between 110 volts and 120 volts on the multimeter screen.Any reading outside this range means that the particular live slot is bad.The outlet or plug may be performing poorly because there is a short within its circuit. This is where electricity is passing through the wrong components.With the multimeter set to the 600VAC limit, place the red probe into the neutral slot and place the black probe on any metal surface close by.If you use a four-way outlet or plug, stick one probe in the neutral and the other probe in the ground slot.You may also individually test the ground slot against a metal surface.If you get any reading, whatsoever, from the multimeter, then there is a short circuit.Current isnt supposed to be running through the neutral slot except when an appliance is drawing power through it.In the case that your outlet or plug is bad and you have decided to change it, there are a few things to consider.When picking components for the new installation, ensure that they have the same specifications to work with 240V electrical systems. These specifications include havingThe same amperage rating for compatibility with your circuit breaker, An appropriate wire size, and Consideration for a four-way component with ground, to ensure increased protection against shock hazards.Testing a 240V outlet is a straightforward procedure you may fully carry out on your own. The most important thing, however, is to take safety precautions and carefully follow all the steps that have been explained above.You dont need to call an electrician to make the appropriate diagnosis. You only need a multimeter. A 240V outlet usually has two identical live slots and a third neutral slot that is shaped like an L. Four-way 240V outlets have an additional fourth ground slot shaped like a semi-circle. In electrical systems, there are no distinctions between 220V appliances and 240V appliances or electrical components. Even though these numbers differ, they represent the same voltage level. 1Read the instructions that came with your multimeter before you use it. Even if youve used a multimeter before, the instructions of different models can vary and its important to read them to keep yourself safe. Read the instructions that came with your multimeter and check for specific information on how to safely test an outlet with the device.[1]Its especially important to make sure that the multimeter is capable of testing the voltage of the outlet. If the voltage is too high for the multimeter to measure, you may break it by trying to measure it. 2Turn on the multimeter and switch the dial to the AC setting. AC stands for alternating current and it is usually represented by an A with a squiggly line beside or above it, such as ~A or A~.[2] Locate the power switch on the multimeter and switch it on. Then, turn the dial on the front of the multimeter to the AC setting. The dial may be clearly marked to indicate what the AC setting is, or you might need to check the manual if it uses symbols.[3]Check your multimeters manual if you are unsure of how to turn it on. Advertisement 3Insert 1 prong into the left side and 1 into the right side of the outlet. The multimeter should have 2 prongs, one red and one black. Insert 1 of them into the left side of the outlet and the other into the right side of the outlet.[4]Even though the prongs are different colors, it doesnt matter which one you put into each side of the outlet. The colors only matter for testing circuits and other types of electrical currents.[5]Warning: Hold the prongs by the insulated parts only. Do not touch the metal parts or you may electrocute yourself![6]4Check the reading on the multimeter to determine the outlets voltage. Once the prongs are in place, look at the front of the multimeter. If its a digital multimeter, the number will be displayed clearly on the screen. If its an analog multimeter, look at where the needle is pointing to get the reading.[7]A typical reading for a household outlet in the United States is 120 volts. However, if its lower or higher, the outlet may be malfunctioning.Pull the prongs out of the outlet and switch off the multimeter after youre done checking the outlet. Mike Holt, Residential Wiring Specialist Testing outlets with a multimeter is a crucial safety step before any electrical work. Set the device to AC voltage mode and insert the leads correctly, with one prong in the hot slot and one in neutral. A normal reading is 110-120 volts. Abnormal readings indicate a wiring issue that must be addressed before proceeding, potentially preventing electrocution or fire. Advertisement 1Switch on the multimeter and turn the dial to the AC setting. AC stands for alternating current and this setting measures the volts that an outlet is putting out.[8] Find the power switch on your multimeter and switch it on. Then, locate the dial on the front of the multimeter and turn it to the AC setting. The dial may be marked to indicate the AC setting, such as with an A followed by a squiggly line.[9]Look at your multimeters instruction manual if you are not sure how to turn it on or select the AC setting.2Press the black prong against a screw or other metal part of the fixture. To ensure that no electricity is reaching the outside of your outlet, hold the black prong by the insulated part. Then, press the metal tip of the prong against a screw or another piece of metal on the outlet fixture.[10]Do not touch the metal prong at any point while youre doing this!3Insert the red prong into the bottom hole of the outlet. Next, hold the red prong by the insulated part and insert the metal prong into the bottom hole of the outlet. This hole is round with 1 flat edge. If the hole is grounded as it should be, no electricity should come out of it.[11]Tip: If you want, you can also check the left side of the socket while pressing the black prong against a screw. No electricity should come out of the left slot of your socket either. Only the right side of the socket should have an electrical current. 4Look for a reading of 0.001 on the multimeter screen. Once the red prong and the black prong are in place, look at the screen or analog dial on your multimeter. The reading should be 0 or 0.001 volts. This indicates that no electricity is reaching the outside of the outlet and it is well grounded. If the number is higher than this, the casing is a potential electrocution hazard. Call an electrician for assistance.[12]Remove the prongs from the outlet and switch off the multimeter when youre done. Advertisement Add New Question Question Why are polyethylene outdoor Ethernet cables more resistant to damage from extreme temperatures than regular Ethernet cables? Ricardo Mitchell Electrician & Construction Professional, CN CoterieRicardo Mitchell is the CEO of CN Coterie, a fully licensed and insured Lead EPA (Environmental Protection Agency) Certified construction company located in Manhattan, New York. CN Coterie specializes in full home renovation, electrical, plumbing, carpentry, cabinetry, furniture restoration, OATH/ECB (Office of Administrative Trials and Hearings/Environmental Control Board) violations removal, and DOB (Department of Buildings) violations removal. Ricardo has over 10 years of electrical and construction experience and his partners have over 30 years of relevant experience. Well, the polyethylene cables are designed to be used outside, so they're better at withstanding extreme weather and temperatures. The polyethylene is just a tougher material than the stuff they normally use to make Ethernet cables. Ask a Question Advertisement Thanks Thanks Advertisement Co-authored by: Electrician & Construction Professional, CN Coterie This article was co-authored by Ricardo Mitchell. Ricardo Mitchell is the CEO of CN Coterie, a fully licensed and insured Lead EPA (Environmental Protection Agency) Certified construction company located in Manhattan, New York. CN Coterie specializes in full home renovation, electrical, plumbing, carpentry, cabinetry, furniture restoration, OATH/ECB (Office of Administrative Trials and Hearings/Environmental Control Board) violations removal, and DOB (Department of Buildings) violations removal. Ricardo has over 10 years of electrical and construction experience and his partners have over 30 years of relevant experience. This article has been viewed 197,931 times. Co-authors: 7 Updated: February 7, 2025 Views:197,931 Categories: Electrical Wiring and Safety Switches PrintSend fan mail to authors Thanks to all authors for creating a page that has been read 197,931 times. Hey DIYers! If youre wondering whether your electrical outlets are up to snuff, Ive got just the tool for you a multimeter. This little gadget is a game-changer for checking faulty outlets or those pesky loose connections. Key Takeaways: Lets dive into what well cover with our trusty multimeter: Power, Grounding, and Polarity. These are the big three checks to ensure your electrical setup is top-form. Power Test Were on a mission to determine if your outlet is serving up the electricity it should. Grounding Test This ones all about safety. Were checking to see if your outlet is properly grounded. Polarity Test Figuring out if the wiring behind your outlet is set up correctly. Stick with me, and Ill guide you through each of these steps to make sure your electrical system is not just working but working correctly and safely. Lets get to it! Alright, folks, lets talk safety because this is serious business. When dealing with live power outlets, we need to be extra cautious. Heres my golden rule: never, and I mean never, touch the metal prongs of the multimeter probes. Ive learned this the hard way, and its a mistake you only make once! Also, a little trick I use is holding both probes in one hand. This way, the current wont pass through your entire body if theres a shock. Safety first, always we want to fix our homes, not become part of the circuit! RELATED How to Test an Outlet with a Multimeter Alright, team, lets jump into how to conduct a POWER TEST with a multimeter on your outlet. Its a straightforward process, but attention to detail is key. Trust me; Ive been around enough outlets to know anyone can handle this task with the right guidance. A simple test for power in a receptacle [Black & Decker] You will need a multimeter to check any outlet. Either an analog or digital type will do. First, grab your multimeter it doesnt matter if its analog or digital. What youre going to do is set it to measure AC voltage. Look for the setting with a little wavy line symbol.Video | AMRE Supply Now, plug the red probe into the jack marked V (for voltage, folks), and the black one goes into the COM jack. I always double-check these connections.Video | AMRE Supply Next up, lets insert those probes into the outlet. Youll see two slots one shorter, one longer. In the electrical world, these are known as hot and neutral. Heres the cool part about AC voltage it doesnt matter which probe goes where. But, if you want to play it by the book, red goes to the short slot and black to the longer. Ive mixed them up more times than I can count, and guess what? It still works.Video | AMRE Supply Remember, theres also a third slot, the round one thats your ground. Treat each slot with respect; they all can pack a punch.Video | AMRE Supply With your probes in place, its time to check the reading. If theres power, your multimeter will tell you. Analog? Watch that dial spin. Digital? Look for those numbers. A normal reading? It should be close to your main supply voltage, typically around 110-120 volts here in the U.S.Video | AMRE Supply Through my adventures with outlets, Ive seen all sorts of readings. The key is knowing whats normal for your setup. If its way off, thats a story for another day (or a call to a pro). And there you have it checking power in an outlet with a multimeter. Stay safe, and happy testing! RELATED How to Use a Multimeter to Test an Outlet (4 Best Ways) Hey everyone! Lets investigate how you can check if your outlet is properly grounded. Grounding is super important for safety its like having a backup plan for your electrical system. Ive seen my share of grounding issues; let me tell you, its something you want to get right. Heres how I do it: First off, set your multimeter to the highest AC voltage range its got. This is to make sure we cover all bases. I remember this one time I didnt do this and got a reading that threw me off. Lesson learned!Video | Electro University Now, pop those test probes into the outlets hot (shorter slot) and neutral (longer slot). It doesnt matter which probe goes where I love that about AC voltage; it doesnt sweat the small stuff.Video | Electro University Heres where the magic happens. Carefully pull out the black probe usually the one I start with and move it to the third hole, the ground slot. Its round and pretty hard to miss.Video | Electro University Keep an eye on that multimeter. A properly grounded outlet? Itll show you the same measurement as when both probes were in the hot and neutral slots. Ive had my aha moments with this test, finding out some outlets werent grounded when I thought they were. Video | Electro University And there you have it! Grounding might not be the most glamorous part of electrical work, but its one of the most crucial. Take it step by step and always prioritize safety. Happy grounding! RELATED How to Test 30 Amp RV Outlet with Multimeter (Guide) Alright, folks, lets talk about running a Polarity Test on your outlets. This test is all about making sure your wirings on point. Its a simple check, but it can tell you a lot. Ive encountered some outlets with reversed wiring, and while its usually not the end of the world, its good to know. Lets break it down: Kick things off by setting your multimeter to the highest AC voltage range. This setting gives you the best chance to catch any weirdness with your outlets wiring.Video | Sparky Channel Now, grab your probes. Place the red one in the small vertical slot your hot slot. Then, the black probe goes into the longer slot, known as the neutral.Video | Sparky Channel I always double-check to ensure I have them in the right slots. Its easy to mix them up, but hey, were only human.Heres the moment of truth. Your multimeter shouldnt show a reading if your outlets wired correctly. Thats right, nada.Video | Sparky Channel But if you do get a reading, its a heads-up that your wiring might be reversed. Ive seen this a few times in older homes. And there you have it your quick guide to conducting a Polarity Test. Its a handy little check that can save you from some surprises down the line. Stay safe, and keep on testing! RELATED How to Wire Outlets in Series (Wiring Basics) Lets tackle some common hiccups you might encounter while using a multimeter. These issues can range from inconsistent readings to a non-responsive device, and Ive seen them all. Ill share my experiences and solutions to these problems. Understanding these can be a real game-changer in your electrical troubleshooting journey. Common IssueDescriptionSolutionInconsistent ReadingsThe multimeter shows fluctuating voltage readings, which can be confusing.I always ensure that my probes are firmly inserted in the outlet a loose connection often causes this.Also, I check my multimeters batteries; Ive been fooled by weak batteries more than once!Multimeter Not RespondingNo reading or response from the multimeter when probes are inserted.I first replace the battery, as its usually the simplest solution.If that doesnt work, I check the internal fuse. Ive blown a few fuses in my time by accidentally testing high currents.Readings Dont Match Expected VoltageThe voltage reading is significantly off from the standard 110-120V.This can signal an outlet or wiring issue. I recall a situation where a voltage drop was caused by an overloaded circuit elsewhere. When in doubt, I suggest consulting with a professional.Zero Reading in a Known Live OutletThe multimeter shows zero voltage in an outlet I know should be working.I double-checked to make sure Id set it to AC voltage. If correct, I test the multimeter on another outlet to rule out a device issue. Sometimes, the simplest solutions are the ones we overlook.Probes Spark When InsertedInserting the probes into the outlet causes a spark.A small spark can be normal, especially in outlets under heavy loads. But if the sparking is significant, it could indicate a more serious issue like a short circuit.In these cases, I always err on caution and consider professional help. Remember, safety comes first! If youre ever in doubt during your DIY electrical adventures, its best to call in the experts. Electrical work is fascinating, but it comes with risks that need to be respected. RELATED How to Test an Outlet with a Multimeter Hey there, DIYers! Lets chat about keeping your multimeter in tip-top shape. Like any trusty tool in your arsenal, your multimeter needs a little TLC to keep giving you those spot-on readings. Heres what Ive learned from my time in the trenches with these handy gadgets. First up, keep it clean. Dust, dirt, and grime are the enemies of precision. I make it a habit to give my multimeter a gentle wipe-down after each use. A soft, dry cloth does the trick. And for those nooks and crannies? A can of compressed air is like a magic wand. The heart of your multimeter is its battery. Weak or dead batteries? Theyll give you readings that are as unreliable as a two-dollar watch. Change them regularly, even if you think theyve got some juice left. I learned this hard when I got some funky readings during a crucial job. Your probes are the hands of a multimeter. Frayed or damaged probes give inaccurate readings and can be downright dangerous. Inspect them regularly for any wear and tear. And if they look suspect? Replace them, no questions asked. Now, heres the big one calibration. Even the best multimeters drift over time. I recommend calibrating your multimeter professionally at least once a year, especially if you use it frequently or in critical applications. Think of it as an annual check-up for your tool. When youre not using your multimeter, where you store it matters. A cool, dry place is your best bet. Extreme temperatures and moisture? I keep mine in a protective case. A quick note stick to the accessories (like probes and leads) designed for your specific multimeter model. Mixing and matching might seem fine, but it can affect accuracy and safety. Ive seen some odd results from mismatched gear, and its not worth the risk. Following these maintenance tips will make your multimeter a reliable partner in your electrical adventures for years. Remember, a well-maintained tool is a dependable tool! Stay safe and happy measuring! RELATED How to Use a Multimeter to Test an Outlet (4 Best Ways) Can I Use a Multimeter on Any Outlet?Absolutely! Whether a standard household outlet or a bit more complex, your multimeter is up for the task. Ensure its set to the correct measurement type AC voltage for standard outlets. How Often Should I Replace My Multimeters Batteries?Dont wait for them to die on you mid-test. I replace mine regularly, depending on how often I use the tool. Is It Safe to Check a Live Outlet with a Multimeter?Yes, its safe if you follow the right procedures. Never touch the metal part of the probes, and always use the right settings on your multimeter. How Do I Know If My Multimeter Is Accurate?The golden rule: calibration. If youre using it for critical tasks, get it professionally calibrated at least once a year. And always cross-check readings with a known voltage source if you suspect its off. Can I Use a Multimeter on Appliances Like a Washing Machine or Refrigerator?You bet! A multimeter can help diagnose issues with large appliances. Checking voltage, continuity, and sometimes even capacitance can give you insights into whats happening under the hood. But remember, if youre uncomfortable with it, theres no shame in calling a professional. RELATED How to Test 30 Amp RV Outlet with Multimeter (Guide) Organizations: Books: Website Resources: Safe Electricity. Video References: Sparky Channel Electro University AMRE Supply 1Read the instructions that came with your multimeter before you use it. Even if youve used a multimeter before, the instructions of different models can vary and its important to read them to keep yourself safe. Read the instructions that came with your multimeter and check for specific information on how to safely test an outlet with the device.[1]Its especially important to make sure that the multimeter is capable of testing the voltage of the outlet. If the voltage is too high for the multimeter to measure, you may break it by trying to measure it. 2Turn on the multimeter and switch the dial to the AC setting. AC stands for alternating current and it is usually represented by an A with a squiggly line beside or above it, such as ~A or A~.[2] Locate the power switch on the multimeter and switch it on. Then, turn the dial on the front of the multimeter to the AC setting. The dial may be clearly marked to indicate what the AC setting is, or you might need to check the manual if it uses symbols.[3]Check your multimeters manual if you are unsure of how to turn it on. Advertisement 3Insert 1 prong into the left side and 1 into the right side of the outlet. The multimeter should have 2 prongs, one red and one black. Insert 1 of them into the left side of the outlet and the other into the right side of the outlet.[4]Even though the prongs are different colors, it doesnt matter which one you put into each side of the outlet. The colors only matter for testing circuits and other types of electrical currents.[5]Warning: Hold the prongs by the insulated parts only. Do not touch the metal parts or you may electrocute yourself![6]4Check the reading on the multimeter to determine the outlets voltage. Once the prongs are in place, look at the front of the multimeter. If its a digital multimeter, the number will be displayed clearly on the screen. If its an analog multimeter, look at where the needle is pointing to get the reading.[7]A typical reading for a household outlet in the United States is 120 volts. However, if its lower or higher, the outlet may be malfunctioning.Pull the prongs out of the outlet and switch off the multimeter after youre done checking the outlet. Mike Holt, Residential Wiring Specialist Testing outlets with a multimeter is a crucial safety step before any electrical work. Set the device to AC voltage mode and insert the leads correctly, with one prong in the hot slot and one in neutral. A normal reading is 110-120 volts. Abnormal readings indicate a wiring issue that must be addressed before proceeding, potentially preventing electrocution or fire. Advertisement 1Switch on the multimeter and turn the dial to the AC setting. AC stands for alternating current and this setting measures the volts that an outlet is putting out.[8] Find the power switch on your multimeter and switch it on. Then, locate the dial on the front of the multimeter and turn it to the AC setting. The dial may be marked to indicate the AC setting, such as with an A followed by a squiggly line.[9]Look at your multimeters instruction manual if you are not sure how to turn it on or select the AC setting.2Press the black prong against a screw or other metal part of the fixture. To ensure that no electricity is reaching the outside of your outlet, hold the black prong by the insulated part. Then, press the metal tip of the prong against a screw or another piece of metal on the outlet fixture.[10]Do not touch the metal prong at any point while youre doing this!3Insert the red prong into the bottom hole of the outlet. Next, hold the red prong by the insulated part and insert the metal prong into the bottom hole of the outlet. This hole is round with 1 flat edge. If the hole is grounded as it should be, no electricity should come out of it.[11]Tip: If you want, you can also check the left side of the socket while pressing the black prong against a screw. No electricity should come out of the left slot of your socket either. Only the right side of the socket should have an electrical current. 4Look for a reading of 0.001 on the multimeter screen. Once the red prong and the black prong are in place, look at the screen or analog dial on your multimeter. The reading should be 0 or 0.001 volts. This indicates that no electricity is reaching the outside of the outlet and it is well grounded. If the number is higher than this, the casing is a potential electrocution hazard. Call an electrician for assistance.[12]Remove the prongs from the outlet and switch off the multimeter when youre done. Advertisement Add New Question Question Why are polyethylene outdoor Ethernet cables more resistant to damage from extreme temperatures than regular Ethernet cables? Ricardo Mitchell Electrician & Construction Professional, CN CoterieRicardo Mitchell is the CEO of CN Coterie, a fully licensed and insured Lead EPA (Environmental Protection Agency) Certified construction company located in Manhattan, New York. CN Coterie specializes in full home renovation, electrical, plumbing, carpentry, cabinetry, furniture restoration, OATH/ECB (Office of Administrative Trials and Hearings/Environmental Control Board) violations removal, and DOB (Department of Buildings) violations removal. Ricardo has over 10 years of electrical and construction experience and his partners have over 30 years of relevant experience. Well, the polyethylene cables are designed to be used outside, so they're better at withstanding extreme weather and temperatures. The polyethylene is just a tougher material than the stuff they normally use to make Ethernet cables. Ask a Question Advertisement Thanks Thanks Advertisement Co-authored by: Electrician & Construction Professional, CN Coterie This article was co-authored by Ricardo Mitchell. Ricardo Mitchell is the CEO of CN Coterie, a fully licensed and insured Lead EPA (Environmental Protection Agency) Certified construction company located in Manhattan, New York. CN Coterie specializes in full home renovation, electrical, plumbing, carpentry, cabinetry, furniture restoration, OATH/ECB (Office of Administrative Trials and Hearings/Environmental Control Board) violations removal, and DOB (Department of Buildings) violations removal. Ricardo has over 10 years of electrical and construction experience and his partners have over 30 years of relevant experience. This article has been viewed 197,931 times. Co-authors: 7 Updated: February 7, 2025 Views:197,931 Categories: Electrical Wiring and Safety Switches PrintSend fan mail to authors Thanks to all authors for creating a page that has been read 197,931 times. Ever wonder whether power is reaching an outlet? The voltage reading on a digital multimeter can tell you. When you test outlets with a multimeter, you'll be able to tell whether the white and black wires are reversed, whether the receptacle is grounded correctly, and which cable entering the box feeds power to the outlet. If a problem arises with an electrical receptacle in your home, you can usually diagnose it by running one of the five outlet tests explained below.You conduct most of these tests with the power on, so work carefully. To be safe, hold both meter probes in the same hand so that a shock doesn't pass through your body. A digital multimeter is a small electronic device used to measure electrical properties such as voltage, current, and resistance. It is sometimes also known as a multitester. You can purchase a multimeter at a home improvement store, a hardware store, or anywhere tools are sold. Costs vary from a few dollars to several hundred depending on how precise you need the measurements to be. A basic handheld multimeter meant for non-professional, at-home use costs between $15 and $50. Voltage is the amount of pressure that pushes the electricity through the circuit. The higher the voltage, the more electricity is flowing. To test it, set the multimeter to measure voltage. Insert a probe into each slot and read the line voltage measurement. A properly working outlet gives a reading of 110 to 120 volts. If there is no reading, check the wiring and the outlet. A properly grounded outlet registers voltage when one probe of a voltage detector, as shown, or a multimeter set to measure voltage, is inserted into the small outlet slot, and the other probe is placed on the receptacle's center screw. If the light fails to turn on, the outlet is not grounded correctly and you should conduct a polarity test. A polarity test determines whether all the conductors in an electrical installation are properly connected and not mistakenly reversed, which can be dangerous. To do a polarity test, insert one probe of a voltage detector or a multimeter into the large slot and the other against the screw (scrape off any paint to ensure good contact). If the voltage detector lights, that means the hot and neutral wires are reversed and the wiring should be further checked. Before you begin, turn off the power. Then disconnect the outlet from the wiring. Set your multimeter to Ohms. Put a probe into one of the outlet slots and the other probe on the nearest terminal screw. The multimeter should indicate continuity. Test the remaining slot and terminal. Then test the ground slot to the grounding terminal. When two cables enter a box, one leads to the breaker or fuse box; the other carries power to other devices on the circuit. To determine which is the hot cable, first turn off the power, then disconnect the outlet and place caps on all the wires except one black one. Then, turn the power back on. Touch a probe to the ground wire or the box and the other probe to the black wire. If you get a reading, that is the hot wire. If not, it is the wire leading to the other devices. To double-check, turn off the power, move the cap from one black wire to the other, turn the power back on, and test the uncapped wire.How can financial brands set themselves apart through visual storytelling? 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Explore our latest gallery of EditorsPicks.Browse Editors' FavoritesLast updated on April 3rd, 2024 at 04:37 pmYou may want to test an outlet for many reasons: to check the AC mains voltage, to find a fault, to identify live and neutral wires, etc. The simplest way to test an outlet is by using a digital multimeter. Since most multimeters can handle AC mains voltage up to 600 volts(maximum outlet voltage is around 220 volts), it is the most reliable and safest equipment for this.Digital MultimeterInsert the probes into the multimeters sockets.Select the appropriate AC voltage range.Switch off the outlet button and wear safety gear.Insert the probes into the outlet(Black first)Note down the voltage readings.Take out the probes(Red first) and Switch off the button.A multimeter usually has three sockets/ports: COM(common or ground), mAV(voltage or resistance), and 10A(current).Insert the red probe into the mAV socket and the black probe into the COM port, as shown below.The red probe is inserted into the 10A port when the measured current value exceeds 250mA. This value may vary depending on the multimeter.Switch on your multimeter if it has an ON button. In most of the multimeters, selecting any multimeter symbol other than the OFF symbol turns it on.Because you are testing the AC mains voltage from the outlet, select the AC voltage function having a V~ symbol.But to select the appropriate range(my multimeter has two: 200 and 600), you must know your countrys domestic electric outlet supply voltage. It will either be 110V or 220V. (Read more)LocationVoltageFrequencyUSA110 V60 HzAsia220 V50 HzEurope220 V50 HzAustralia220 V50 HzCanada120 V60 HzStandard outlet voltage in different locationsI am from Asia, so I have selected the 600 V range. If your outlet voltage is 110 V, then select the 200 V range. These voltage ranges may be different in your multimeter, so select accordingly. As a general rule of thumb, always select the first higher voltage range than your outlet voltage.Before testing the outlet, make sure the button is switched off. You may also switch off the corresponding circuit breaker for extra safety. Ac is dangerous. So always wear gloves, safety glasses, and shoes for proper insulation when performing such tests.Every outlet or socket has three wires: live, neutral, and earthing. The top hole(bigger one) is for earthing only. Whereas live and neutral may be connected to either of the two remaining holes. The AC voltage is measured between live and neutral; the earthing one is just for safety. So leave it alone.To test the outlet, hold the multimeter in one hand and insert the probes with the other hand into the outlet. Hold both meter probes with one hand to prevent electric shock from passing through your body if a fault occurs.Insert the black probe first(left hole) and then the red probe(right hole). Normally, the black probe or COM should be connected to the neutral wire(for extra safety), but there is no way to know firsthand which hole is which. So you can insert the probes in any manner.Turn on the outlet switch and wait for the readings to stabilize on the multimeters display.Note down the displayed outlet voltage. You can also use the hold button to freeze the readings on the display.If the multimeter shows a different voltage every time you turn on the switch, note the readings. These may help you to diagnose the issue later on.Once you are happy with the readings, turn off the switch and remove the probes from the outlet. Remove the red probe first and then the black probe. Turn off the multimeter after use.If the outlet voltage displayed by the multimeter is close to your countrys standard domestic supply voltage, then there is no need to worry. For example, the outlet voltage can be anywhere between 220 and 230 volts in Europe and Asia. In USA and Canada, this voltage