



Five Things to Consider When Buying a Clamp

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1. Choose a clamp that gives accurate and repeatable results

Does your clamp report the true-rms reading?

Is the problem with your motor or your clamp?

Make sure your clamp meter is working for you rather than against you.

Imagine that you have spent the whole day troubleshooting a problem with a motor only to discover that the problem wasn't really the motor but the clamp you were using to measure it. You stake your reputation on your ability to get the job done, be sure your clamp meter is working for you not against you.

First, make sure your clamp meter reports the true-rms reading. Otherwise noise from everything from a variable frequency drive to compact fluorescent bulbs can result in a less accurate reading.

You should always make sure that the clamp meter meets the industry accuracy standard: $2\% \pm 5$ counts. Beware of accuracies stated to ± 10 counts, as these meters can have twice the error when measuring low currents.

2. Make sure the clamp works where you do

Have you ever dropped your clamp?

Have you ever used your clamp outside?

Have you ever used your clamp to pry apart wires?

If so, make sure your clamp can work where and how you do.

Making accurate and repeatable results in a laboratory is a good start. But you don't always work in a clean and controlled environment. Before making a purchase, check whether the clamp is specified to work in the environment you do.

One important feature is a built in low pass filter to ensure that interference from other electronics won't distort your readings. Also be sure you don't buy a clamp specified for indoor use only or with a minimum operating range warmer than 15°F if you think you might need to make measurements outside. If the clamp isn't designed for the outdoors the measurements you get might not be accurate.

Finally be sure the clamp you are using is rugged enough to continue to give reliable results after years of prying wires apart, drops from ladders and bouncing around the back of your truck.

3. Don't compromise on Safety

Does the clamp have the correct rating for the work you are doing?

Will the design allow you to use the meter easily when wearing PPE?

If they don't, you could be in danger.

Your test and measurement tools are a critical link between you and danger. They are quite literally an extension of your body into a very dangerous environment. First things first, be sure you choose a clamp meter with an appropriate category rating for the work you are doing.

Second, choose a brand with a reputation for providing safe test and reliable test equipment. Anyone can buy a clamp meter and put their brand on it. Only a few manufacturers design, build and test their own equipment to exceed international safety standards.

Finally, your clamp meter is part of a safety system that includes personal protective equipment (PPE). In addition to having the right PPE, be sure that you can easily operate your test and measurement equipment with that gear in place. Safety gear in your tool box or locker will do you no good, and it isn't being used safely if you have to take it off parts of it when operating your test equipment.

4. Choose a clamp meter with easy to replace batteries

Your clamp meter isn't a power hog.

Don't treat it like one.

High capacity battery packs are important for drills or other high power devices, but clamp meters are designed not to be power hogs. Because you use a clamp meter to troubleshoot electrical problems and important equipment, losing power in the middle of a measurement can put you or others at risk. At a minimum, you're on the clock, so it is most likely costing you – or your company – valuable time.

Most clamp meters can get more than 150 hours of operating time out of two standard AA batteries. When choosing a clamp meter choose one that uses standard alkaline batteries. That way you won't be left waiting for proprietary batteries to recharge, plus it is easy and inexpensive to carry replacements.

5. When choosing features, pick quality over quantity

Not using all the features on your clamp meter?

It could be costing you.

In money and functionality.

These days you can get almost anything built into a clamp meter (tape measure anyone?). The more gadgets that are built into a clamp meter, the harder it becomes to use and the worse it performs. Instead of trying to get the most features possible, choose a meter that has the measurement functions you need to get the job done, without any of fluff that doesn't make sense. Plus, you don't end up paying for features irrelevant to the job at hand.

The right measurement functions depend on the type of work that you are doing, but be sure to consider the following:

1. **Inrush.** If you are working around motors and drives, an accurate inrush measurement function is a must. The Inrush function allows you to accurately measure the high current surge that flows into motors during startup. This measurement can be critical when troubleshooting problems such as nuisance trips of over current protection devices. Because it looks at the entire motor inrush period, it is far more accurate than the "MAX" function which only looks at a single point in time.
2. **Autorange display.** A measurement that displays in the correct range can be a real timesaver when working in tight spaces. Choose a clamp that automatically sets the correct measurement range so that you are not having to adjust switch positions while trying to position the clamp and take a measurement.
3. **Large display with Backlight.** Be sure the clamp meter display you select has large, easy to read characters. Some displays may seem adequate when viewed in a showroom but then fail to perform in the workplace. Real world conditions mean a wide viewing angle and backlight are a must.

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