Dear A Tech...

"I have a very old, but good condition Bridgeport mill. However, the digital readout on it hasn't worked for years. I'm considering my options. Should I buy a new readout, or try to have this one repaired? I see complete DRO kits advertised in trade magazines for as low as $599 and some for over $1200, as seen on your website. If my unit is not repairable, what's the difference between DROs (besides $600!), and which one should I buy? " Thanks, *Confused.*

Dear Confused,

Your situation is not uncommon; we regularly hear this from customers and help them understand the differences and benefits of various digital readout packages on the market. Basically, as you stated, you have two options. We can repair your existing digital readout if parts are still available, or you can replace it with a new one. There are advantages and disadvantages of each option so, let's first discuss option one.

We have been servicing digital readouts since 1979 so we have an extensive knowledge base on various types of digital readouts and scales. This allows us to evaluate your system for repair through a few simple steps, and sometimes even over the phone. If it is determined that we need to physically inspect your system, we could do so either at your facility or here in our service center. Servicing older digital readouts can be very simple and inexpensive, making it an attractive option. However, there is the possibility that the replacement parts required to bring your system into working condition are so expensive that a new system is a better option. We have a general rule when choosing to repair or replace a small digital readout system like yours: if the repair cost is greater than 60% of the cost of a new kit, you should replace it.

Now, let's say that your system needs to be replaced. Which one should you buy? Choosing the right digital readout system comes down to finding the right balance of functionality, accuracy, and price. Something to remember when choosing a digital readout is "You get what you pay for." In our experience, the $599 packages that you mentioned are cheap imports that have a life expectancy of a couple of years without any warranty or repair options. For this reason, and the fact that we offer full tech support with every purchase, we do not represent any of these manufacturers.

So which manufacturer? In order to answer this question, we need to discuss your requirements. After learning about you and your process, we can help you match the best package for your needs. There are two areas to consider when choosing a DRO system; the readout, which provides helpful machining functions, and the scales which determine the system accuracy. Readouts come as either an LED or LCD display. The old style LED version uses multi-segment LEDs to form letters and numbers. Whereas the newer LCD displays utilize an LCD panel similar to your computer screen, which provides a high contrast graphical user interface. Most readouts today offer the same features; bolt hole functions, tool offsets, high resolution display, taper calculator, and much more. Readouts rarely fail, so you should feel free to choose the one which offers the best functions for your needs.

The readout you choose should play a small factor in your determination of which system to buy. The scales that you choose will determine the system's accuracy, longevity, and overall cost of ownership. The basic principle behind the function of all incremental scales is the same; producing counts by detecting transitions. Glass scales detect light and dark transitions, magnetic scales detect North and South polar field transitions, and some use a principle called electromagnetic induction, which measures the change in density of steel balls inside a tube. No matter the method used, the signal generated is always a sine wave, which is divided into smaller signals, producing a fine measuring step required for precision measurement. Dividing the sine wave into smaller steps produces a hidden error called "short wave error," which can potentially be greater than the overall scale error. Knowing this, we can understand why the resolution of a DRO system doesn't mean nearly as much as the accuracy at which the signals are produced.

We believe that the best way for you to determine which DRO is best for you, is to fully understand the differences between them. We have given you a brief overview of the differences in this letter, and look forward to speaking with you further. Please feel free to call or email any of our engineers to discuss your specific requirements.

Sincerely,

A Tech Authority, Inc.
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