

OPERATING INSTRUCTIONS FOR THE CERES DUAL XL DIAMOND/MOISSANITE TESTER

Congratulations on purchasing the Dual XL from Ceres Electronics Corporation, the pioneer in electronic gemological products. The Ceres Dual XL is rugged and simple to operate and will provide many years of service. However, the life of the instrument and its ability to perform accurate tests will be largely dependent upon the care taken by the user. **Failure to read this manual carefully and follow its instructions could lead to improper identification of gemstones and/or to damage to the product, which will void its warranty.**

HOW IT WORKS

One of the properties of natural Diamond is the ability to conduct heat very rapidly, unlike all common Diamond simulants, such as Glass and Cubic Zirconia, which are typically poor conductors of heat. Ceres Electronics was first to recognize the importance of this significant difference in thermal conductivity as a practical, simple method of gem identification. The thermal gem-testing technique, developed and patented by Ceres Electronics, is now universally accepted by gem and jewelry professionals as a fast, simple method of differentiating natural Diamond from its common simulants.

However, the introduction of Moissanite to the jewelry market has complicated matters slightly, since Moissanite shares with Diamond the property of high thermal conductivity. Traditional diamond testers, therefore, will register a Diamond response when testing Moissanite. As it turns out, Moissanite differs from natural Diamond in that it is electrically conductive. The Ceres Dual XL, therefore, simultaneously measures a gemstone's ability to conduct both heat and electrical current, using technology developed and patented by Ceres Electronics (patent #'s 6265884 and others). Thus, a stone that rapidly conducts heat but does not conduct electricity will be determined to be natural Diamond; a stone that rapidly conducts both heat and electricity will be determined to be a Moissanite; a stone that conducts neither heat nor electricity will be determined to be a CZ or other simulant.

ABOUT MOISSANITE

The thermal conductivity method for differentiating Diamond from CZ is nearly flawless; electrical conductivity as a means to differentiate Diamond from Moissanite, unfortunately, is not. Whereas a Diamond is uniformly thermally conductive (i.e., all natural Diamonds are conductive and will conduct heat regardless of where on the stone you make your test), Moissanite stones have varying degrees of electrical conductivity. In other words, some Moissanite stones are more conductive than others, and even a conductive stone may have certain areas of non-conductivity.

Additionally, dust or other airborne particles in any jewelry testing environment often contain gold or silver, which are electrically conductive. These particles can easily cause a Diamond to react as Moissanite – even if you can't see them. For this reason, regular and careful cleaning of both the gemstone and the probe tip are vital to successful gem identification.

Please also be aware that the use of Moissanite in jewelry is extremely limited – chances are very slim that a stone you are testing is actually Moissanite. This fact, coupled with the relative limitations of electrical conductivity, should cause the user to be suspicious of a Moissanite reading from the Ceres Dual XL. Actual positive readings for Moissanite for the typical jeweler will be very rare.

WHAT IT CAN AND CANNOT DO

The Dual XL has been designed to assist the professional jeweler and gemologist who can visually identify older Diamond simulants such as YAG, Sapphire, or Titanite, but who may have some difficulty in

spotting CZ and Moissanite gems, particularly smaller stones set in gold or silver. For this purpose the Dual XL provides a fast, reliable, and universally accepted method to confirm the user's judgment. While Ceres thermal and electrical conductivity testers have proven themselves as inexpensive and practical aids to identify Diamond-like gems, positive identification should be confirmed by the use of more sophisticated methods of evaluation, coupled with the experienced skills and judgment of the user.

PERFORMING A TEST

Plug the Dual XL into an electrical outlet. Remove the protective cover from the probe tip and move the power switch from the Off to the On position. The Orange (POWER) light will turn on and the Red (READY) light will flash for approximately 15 seconds as the probe tip is warmed up. At the conclusion of the warm-up period, both the POWER and READY lights will remain on, though the READY light may extinguish briefly before coming back on if you are operating the unit on battery power. The Dual XL is now ready to operate.

To perform a test, place the probe tip squarely against the facet of the gemstone, using sufficient pressure for the spring-loaded metal tip to retract partially into its plastic housing. Press firmly and quickly, but do not press so hard that the probe tip retracts fully into the housing.

- ❖ If the gemstone is a Diamond, the Green (DIAM) light will illuminate and you will hear a short beep.
- ❖ If the stone is Moissanite, the Yellow (MOISS) light will illuminate, and you will hear three short beeps.
- ❖ If the gemstone is a CZ, the Red (READY) light may extinguish but will probably remain lit.
- ❖ If the gemstone is some other type of Diamond simulant, the Red (READY) light will extinguish, and there will be no beep.

METAL WARNING BEEPER

The Dual XL incorporates a Warning Beeper indicating that the probe tip has come in contact with metal. Since gold and silver share Diamond's high thermal conductivity and Moissanite's electrical conductivity, many gem testers provide a Diamond or Moissanite reading when you are actually touching the metallic setting of the jewelry.

For proper operation of the Warning Beeper, you must hold the piece of jewelry in one hand while touching the Dual XL's ribbed Contact Plate (see diagram) with the thumb of your other hand. When contact is made with metal, the Dual XL will emit a two-tone signal, indicating that you must retest.

LOW BATTERY INDICATOR

The Dual XL incorporates an LED indication that the unit's rechargeable batteries require recharging. When the Dual XL's batteries require recharging, its orange POWER light will begin to flash, indicating that you must recharge the batteries as directed below. If the batteries are not recharged, the Dual XL will eventually cease to function. You may use the unit on the wall adaptor, however, while the batteries are recharging.

AUTOMATIC BATTERY SHUTOFF

The Dual XL's advanced circuitry includes a feature that will automatically turn the unit off if it has been idle for approximately 60 seconds. If the instrument has turned itself off, simply move the power switch to the OFF position and then back to ON to restart. Please note, however, that you must wait at least 10 seconds after the unit has turned itself off before it will restart.

RECHARGING THE BATTERIES

When you receive the Dual XL from your dealer, you **MUST** charge the batteries for 18-24 hours. You may, however, operate the unit using electrical power while the batteries are charging.

To recharge, simply insert the AC adaptor plug into the Dual XL's charging jack and plug the adaptor into a suitable electrical outlet. Charge the batteries for 18-24 hours before using the product solely on battery power.

TROUBLESHOOTING

- Test only clean gemstones, since body oil, dirt, and dust can produce incorrect readings. Make sure that the stone is completely dry after cleaning, as water and other liquids could causing improper readings.
- For accurate operation, the Dual XL and the gems should be at room temperature (65-75F/18-24C).
- **Clean the probe tip frequently.** It is recommended that the tip be cleaned during warm-up each time the unit is turned on, and after a few minutes of continual operation. The probe may be cleaned by scratching it vigorously against a piece of paper. Do not use coated or waxed paper and be careful to point the probe tip straight down at the paper.
- **Do not test the same stone repeatedly,** especially a very small stone. A Diamond that has been warmed by repeated tests will test as a simulant unless sufficient time is given for the stone to cool to room temperature.
- Always test with sufficient pressure to ensure solid contact between the probe and the gemstone. Tests must be made firmly and quickly, particularly on small stones. Apply pressure to the probe tip the moment that contact is made with the stone.
- Always keep the protective cover on the probe tip when not using the instrument. Turn the unit off when it is not in use.

SERVICE AGREEMENT

In the event that your Dual XL is not performing to your expectations, we strongly recommend calling Ceres Electronics' Customer Service Department before returning it for repair. Many problems can be solved quickly and easily over the telephone, without the need to return the unit for service. Specifically, make sure you have cleaned the probe tip thoroughly before shipping, as this is the most common cause of improper function.

WARNING

There are no user-serviceable parts in the unit. Do not take it apart, as there are areas on the circuit that when touched will give an uncomfortable electrical shock. Evidence of tampering also voids the Limited Lifetime Warranty.

WARRANTY AND DISCLAIMER

Ceres Electronics Corporation warrants that this Ceres Dual XL will be free from defects in material and workmanship for as long as you own it. This warranty extends only to the original purchaser of this instrument and does not include the probe tip and power adaptor, which are warranted for two (2) years.

In the event of a defect during the warranty period, Ceres Electronics Corporation should be notified and the purchaser should return the instrument to Ceres Electronics Corporation, freight prepaid, properly identified, and with proof of purchase date. The sole obligation of Ceres Electronics Corporation, after reasonable opportunity to inspect the instrument, will be to repair or replace the defective instrument, or any part of the instrument that is proven to the satisfaction of Ceres Electronics Corporation to have been defective at the time of purchase, or that has become defective in normal use during the warranty period, at its option and at no charge to the purchaser.

The above warranty is void if the instrument has been serviced by anyone other than Ceres Electronics Corporation or has been altered, abused, misused, or used for purposes other than those for which it was designed or used in a manner contrary to the instructions contained herein.

Ceres Electronics Corporation makes no warranties regarding the Ceres Dual XL other than those expressly contained herein. All other warranties of any kind whatsoever, whether expressed or implied, including warranties of merchantability or fitness for a particular purpose, are hereby disclaimed and are excluded by it.

CERES ELECTRONICS CORPORATION

2250 Liberty Drive

Niagara Falls NY 14304 U.S.A.

Telephone: 716.283.0445

U.S. Toll-free: 800.423.7371