Proton T-4 Automatic Hard Drive and Magnetic Media Degausser

Product Spec Sheet

PROTON® T-4™
HARD DRIVE DEGAUSSER

The NSA listed T-4 utilizes patented “Reverse Polarity” technology to produce a bi-directional field of at least 20,000 Gauss positive and 20,000 Gauss negative per cycle. This proprietary technology creates the highest flux field of any degausser available and ensures permanent erasure of the highest coercivity media available today. It is also projected to handle future media technology for years to come. Other degaussers may have either a positive or negative pulse, but not both; this technology is unique to the T-4. There is also no drawer to open and close, which reduces operator handling and increases efficiency.

SPECIFICATIONS

Cycle Time:	45-60 seconds
Duty Cycle:	Continuous
Power:	Dual voltage (90-240 VAC @ 50-60 Hz)
Media Size:	Handles all magnetic media within 4.3D” x 1”H x 6”W (11cm x 2.5cm x 15cm)
Hard Disk:	5000 Oe (longitudinal and perpendicular)
Tape:	3000 Oe
Weight:	128 lbs (58 kg)
Dimensions:	26”D x 19”H x 10”W (66cm x 48cm x 25cm)
Field Strength:	At least 20,000 Gauss positive (+2 Tesla) and at least 20,000 Gauss negative (-2 Tesla) per cycle

FEATURES & BENEFITS

- **Listed on the National Security Agency’s Evaluated Products List (NSA EPL-Degausser) and meets DoD requirements for sanitizing Top Secret/Classified data**
- Performance verification: internal meter that measures field strength (in Tesla) and reports it to operator on LCD to ensure it’s operating to NSA specs for every cycle
- Patented **“Reverse Polarity”** Electro Magnetic Pulse (EMP) technology produces two pulses per cycle, one positive and one negative
- Fully automatic operation with no drawer to open and close; insert media into top slot and push start button CESG approved (UK), CE certified (EU) and NATO listed
- Allows compliance with recognized security standards and regulations, including **NIST, HIPAA, FACTA, PCI DSS, GLBA, PIPEDA, IRS, GDPR,** etc.
- Stores energy from previous cycles to reduce subsequent cycle times and save energy
- Manufactured in the USA in **ISO 9001** certified facilities
- Maintenance free; 1-year parts and labor warranty included and extended warranty available
- **Options:** 12 Volt battery operation, deployment case with wheels, barcode scanner with audittracking system and more

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T-4™ REVERSE POLARITY

We know that data is stored magnetically on hard disk drives (see Figure 1) and that is why degaussing works. But sometimes a magnetic field in one direction may not be strong enough to degauss a high density hard disk and a reverse field is necessary. The T-4 uses patented technology to automatically create a uniform reverse field.

Magnetic media (hard disk drive, tape, etc.) does not respond differently to pulses in the same direction but it undoubtedly responds differently to pulses in different directions (positive/negative), which creates a field spread.

+ - The use of a positive and negative pulse creates a higher field saturation, which means a more thorough and stronger degaussing operation.

If you examine National Security Agency (NSA) documents, you will see that certain degaussers require the magnetic media to be physically reversed (flipped over) and a second cycle performed with the hard disk upside down (see "Remarks" on page 2 of the most recent NSA EPL-Degausser). This is because they do not produce a strong enough magnetic field.

With the T-4's patented technology, a second cycle will never be needed because it automatically produces a reverse field. It will not be outdated as hard drive technology continue to advance.

The **Magnetic Hysteresis Plot** (see Figure 1) explains the reason for bi-directional erasure. The vertical centerline is "zero," so while single direction erasure may get most of the recorded signal, some remains in the opposite polarity for a number of reasons. Only a fully reversed field can erase securely.

HOW IS DATA RECORDED ON A HARD DISK DRIVE?

When an external magnetic field is applied to a ferromagnet, such as iron, the atomic dipoles align themselves with it. Even when the field is removed, part of the alignment will be retained: the material has become magnetized. Once magnetized, the magnet will stay magnetized indefinitely. This is the effect that provides the element of memory in a hard disk drive. To demagnetize it requires a magnetic field in the opposite direction.

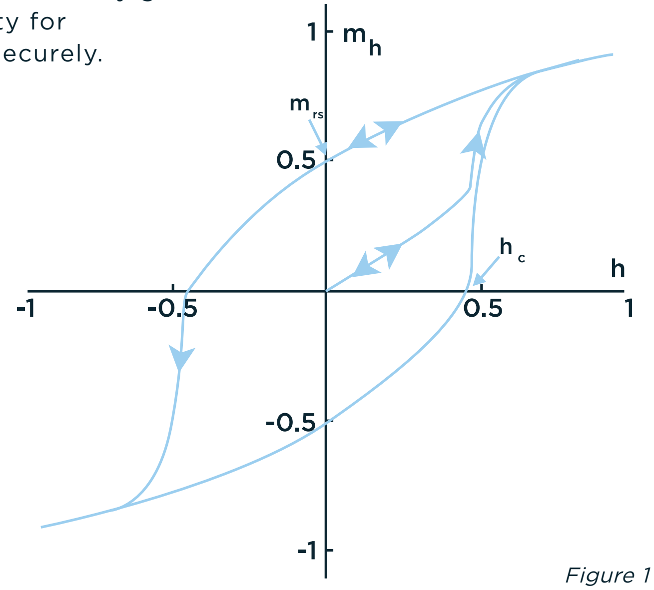

Figure 1

A plot of magnetization m against magnetic field h calculated using a theoretical model. Starting at the origin, the upward curve is the initial magnetization curve. The downward curve after saturation, along with the lower return curve, form the main loop. The intercepts hc and mrs are the coercivity and saturation remanence. When an external magnetic field is applied to a ferromagnet such as iron, the atomic dipoles align themselves with it. Even when the field is removed, part of the alignment will be retained: the material has become magnetized. Once magnetized, the magnet will stay magnetized indefinitely. To demagnetize it requires heat or a magnetic field in the opposite direction. This is the effect that provides the element of memory in a hard disk drive. The relationship between field strength H and magnetization M is not linear in such materials. If a magnet is demagnetized (H=M=0) and the relationship between H and M is plotted for increasing levels of field strength, M follows the initial magnetization curve. This curve increases rapidly at first and then approaches an asymptote called magnetic saturation. If the magnetic field is now reduced monotonically, M follows a different curve. At zero field strength, the magnetization is offset from the origin by an amount called the remanence. If the H-M relationship is plotted for all strengths of applied magnetic field the result is a hysteresis loop called the main loop. The width of the middle section is twice the coercivity of the material.

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