

# LAW and ORDER

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# The ADVANCED TASER



0.0 seconds



0.5 seconds



1.5 seconds

## TASER International takes the Taser to a higher level

BY EUGENE NIELSEN

**T**ASER technology has been in use for over 25 years. During that time it has racked up a mixed record. The taser was first introduced to the law enforcement community in 1974. Taser is an acronym for Thomas A. Swift Electric Rifle, named after Tom Swift of the popular American children's adventure series of the 1920s and 30s.

Tasers are conducted energy weapons that fire a cartridge with two small probes (darts) that are connected to the weapon by high-voltage, insulated wire. When the probes contact the target, they transmit very short duration, high energy, electrical pulses along the wires to overwhelm the sensory nervous system, stunning the target.

Although taser stun technology has proven itself in the field as an invaluable less-lethal tool, there have been numerous instances where the stun systems have failed to stop motivated, goal-oriented individuals. Who can forget the Rodney King incident? Statistics as to the effectiveness of stun systems vary, ranging from 33% ineffective (NYPD per Commissioner Safir) to 85% effective (per Tasertron).

Recognizing that even a single failure to stop is one failure too many, Taser International set out in early 1996 to create a less-lethal system that can stop focused combatants. The ADVANCED TASER was the result.

### The advanced v. other tasers

The advanced taser differs from other taser and stun systems in a number of ways. It uses an 18 to 26 Watt electrical signal that overrides the central nervous system to directly control the skeletal muscles. Earlier devices operate in the five to 14 Watt range and may not be effective on subjects who are extremely goal-oriented or high on drugs or alcohol.

The advanced taser works by sending out a series of electrical signals. These signals are called T-Waves and are similar in many respects to the electrical signals used by the brain to communicate with the body. The 18 to 26 Watt T-Waves cause an immediate, uncontrollable contraction of the muscle tissue. They're capable of physically debilitating the subject regardless of his mental focus or pain tolerance. Taser International refers to the patented technology as Electro Muscular Disruption (EMD).

Prior to the advent of the advanced taser, all of the

available less-lethal technologies have relied on some form of pain compliance, distraction or physical immobilization to control a subject. When they fail, officers often think lethal force is the only option.

Taser International manufactures three models of the advanced taser: M18, M18L and M26. The M26, which is sold only to police and government agencies, has a 26 Watt output. The M18 and M18L have an 18 Watt output. All of the models are identical in their external appearance.

The advanced taser differs from other taser designs not only in its output but in its physical design as well. It is designed to handle and function much like a standard duty pistol, making the system intuitive and easy to use. As it doesn't require the development of complex, new motor skills, training time is lessened. The officer aims and fires the weapon using the same muscle memory and motions that have been instilled through primary handgun training.

### **The construction**

The advanced taser is constructed of a proprietary polymer that's designed for maximum toughness. The safety is the only moving part on the weapon. Designed for ambidextrous operation, the safety is similar in location and operation of the safety to that of the Beretta M92/96F. The trigger consists of a rubber covered pressure switch located inside the trigger guard in the same location as a firearm. The switch is actuated by slight pressure and doesn't actually move. It weighs only 18 ounces.

The advanced taser was designed to be reliable and "cop proof." According to Taser International, it can withstand drops of over ten feet without damage. Product literature provided by the company shows it being driven over by a 4,500 lb. sport utility vehicle.

To prevent it from being mistaken for a lethal weapon, a user-installed bright, yellow color kit is included with the weapon. If an agency so desires, it can also be special ordered in a bright yellow polymer to overcome any "looks like a handgun" objection.

The fin and blade sights on the advanced taser are similar to the iron sights on a standard duty pistol. The M26 and M18L have a built-in laser aiming device located underneath the weapon in front of the trigger guard to augment the fin and blade sights. In addition to its use as a supplemental aiming device, the laser also provides a warning to subjects that can potentially de-escalate hostile situations without ever actually firing.

The laser is automatically activated when the weapon is off safe. There is no "kill switch" to disable the laser, however, in situations where it's deemed to be tactically desirable not to employ the laser, it's a simple matter to block the laser with a finger of the support hand or by putting black electrical tape over it.

The M26 is microprocessor controlled; there's an onboard memory that records the dates and times of the most recent 585 times the unit's been fired. The M26 has a Windows 95/98 compatible dataport that allows the data to be downloaded to a PC using a special adapter cable. This feature, which isn't available on the M18 and M18L, enables a law enforcement agency to monitor usage

patterns. It also helps protect officers from any unfounded charges of misuse of force.

The dataport also permits the M26 to be fired remotely. This feature has a number of tactical applications. For instance, the M26 can be mounted on a tactical surveillance system, such as a SEARCHCAM, for use during tactical entries or on robotic entry vehicles.

The advanced taser is powered by eight AA batteries. The batteries are housed in a battery pack that fits inside the grip of the weapon. It has an LED battery status indicator that informs the officer of the status of the batteries at a glance.

### **The Air Taser**

The advanced taser uses the same Air Cartridges as Taser International's AIR TASER 34000-series weapons. The air cartridges use compressed nitrogen as a propellant to expel two barbed probes that are attached to insulated wires. Each air cartridge contains probes, wire and a nitrogen charge.

Unlike the original taser, which uses gun powder as a propellant, the advanced taser and air taser aren't classified as firearms by the U.S. Bureau of Alcohol and Firearms (BATF). They may be purchased and possessed in the states without the restrictions attached to firearms.

The air cartridges are available in two versions: a 21 foot air cartridge for law enforcement and government use and a 15 foot air cartridge. They are distinctively marked for easy identification of each version. Every cartridge bears an individual serial number and an expiration date—they have a five year shelf life. Expired cartridges shouldn't be employed in the field but may be used for training purposes.

Loading and unloading the advanced taser is both quick and instinctive. The air cartridges simply snap into place. The advanced taser will function as a back-up contact stun weapon with or without a cartridge in place, with the capability of sending T-Waves directly into the body of an assailant.

While it can be employed from point blank out to the maximum range of the cartridge (15 or 21 feet), it's recommended the advanced taser should be fired from at least three feet away from the subject in order to give the probes a little room to spread apart. The bottom probe is designed to travel at an eight degree downward angle, allowing the advanced taser to inject the T-Waves into a greater area of the subject.

### **Accuracy and safety**

According to Taser International, the optimum range for the advanced taser with the 21 foot air cartridge is 12 to 18 feet. Initially, the optimum range was considered to be seven to ten feet, but was extended as the result of field experience.

The accuracy of the advanced taser is excellent, much better than other tasers. Other tasers are aimed much like a flashlight, making precise aiming difficult. In contrast, the advanced taser aims just like a handgun to contribute to the improved accuracy.

The air cartridges utilize a longer probe than older model taser cartridges. The longer probes provide greater stability in flight. Also, with the spread of eight degrees versus Tasertron's 12 degree spread, the two probes are more likely to hit center of mass.



Although the advanced taser should be aimed at the center of the subject's chest, a hit anywhere on the body can be effective. The probes don't have to penetrate the skin or cause injury to work. The T-Waves of the advanced taser can penetrate over two cumulative inches of clothing, including leather jackets.

The T-Waves will penetrate some soft body armor, with several notable exceptions. They have difficulty penetrating Spectra-Shield panels since the plastic covering acts like an insulator. The T-Waves also won't penetrate armor carriers with a rubberized coating or through ceramic plates on vests; Twaron is also difficult to penetrate.

The T-Waves aren't transferred to another person in physical contact with the subject if both probes are in the subject. However, if one probe is in the subject and the second probe is in another person, the charge will be transferred to both individuals if they are in physical contact with one another. The charge will also be transferred to another person if that person directly touches the probes or between the probes. Officers on an arrest team can physically restrain a subject while the probes are "hot" without any fear of the charge being transferred, provided the above caveats are heeded.

Major Steve Ijames of the Springfield, MO, Police Department SWAT team recently lined up ten of the team's officers arm to arm, with all of the officers in physical contact with each other. One of the probes was taped to the officer on one end of the line and the second probe was taped

to the officer at the other end of the line. When the advanced taser was activated it immediately dropped all of the officers. Similar results were obtained by the Albuquerque, NM, Police Department when it lined up 34 of its officers arm to arm in a daisy chain. Both of the tests were videotaped and may be viewed at the Taser International Web site at [www.eTASER.com](http://www.eTASER.com).

The T-Waves are automatically discharged into the subject for five seconds when the advanced taser is fired. The timed automatic discharge feature eliminates a major cause of failure with first generation TASER systems— accidentally cutting off the power before the subject was fully immobilized by inadvertently releasing the trigger. The design of the advanced taser prevents this from occurring. If the officer chooses to turn the unit off before the five second discharge cycle is completed he can actuate the advanced taser's safety.

Small identification tags called "AFIDs" are ejected whenever an air cartridge is fired. AFID stands for Anti Felon Identification Device, and there are 20 to 30 AFIDs in each cartridge. Every AFID tag is imprinted with the serial number of the cartridge, allowing law enforcement agencies to determine who was issued the cartridge that was fired.

### Physical effects

Given today's litigious society, the safety of any less-lethal weapon is obviously of concern to law enforcement agencies. While the advanced taser is a new device that

doesn't have the benefit of years of field use, the safety testing has been extensive. In developing the advanced taser, Taser International chose to follow the same approach that's used in the pharmaceutical and medical device industries. The electrical outputs of the advanced taser are still well within the safe levels defined by international standards.

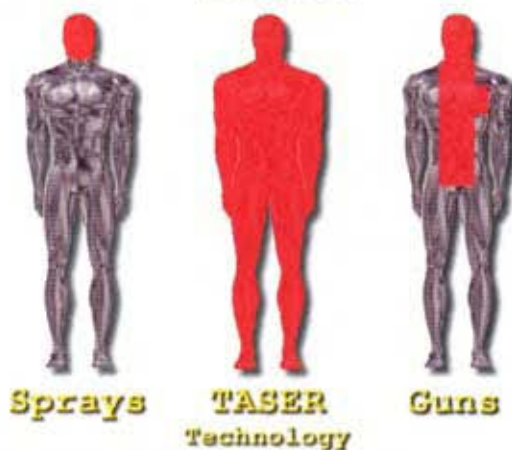
Using "worst case scenarios," two leading experts in cardiac safety found the advanced taser has no adverse effect on heart rhythms. The testing conditions were extreme, including the administration of drugs to test subjects (animals) that made them more susceptible to electrical stimulation, multiple simultaneous taser hits, and even the application of the 26 Watt M26 output directly to the surface of the heart.

The electrical outputs of the advanced taser fall well within the safe levels defined by international standards. Medical experts who were consulted don't foresee any increased risk to patients with either pacemakers or implantable defibrillators. Taser International will provide law enforcement agencies with extensive, in-depth medical safety information on the advanced taser upon request.

Over 800 human volunteers and suspects in the field have been subjected to the advanced taser. In all cases, there has been virtual 100% instant incapacitation when the advanced taser has been employed within its intended design parameters. Even the most focused combat trained individuals have been immediately stopped.

Recovery times from the effects of the advanced taser will

## Effective Target Zones



vary from individual to individual. It generally takes from several seconds to a few minutes for full recovery after being "hit" with the T-Waves from an advanced taser's five second cycle. There haven't been any long term effects or injuries from the taser in any of the volunteers and suspects. At the most there has only been some minor skin irritation similar to mild sunburn resulting from it.

From a practical standpoint, the only real risks of physical injury associated with the use of the advanced taser are sec-

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ondary injuries from falling or being hit in the eye with a probe. These risks apply to other tasers as well. While no weapon system is without risk, the risks from the employment of the advanced taser are substantially less than from other currently available less-lethal weapon systems.

The M26 has either been purchased by, or is undergoing field testing and evaluation with, over 400 U.S. law enforcement agencies. Taser International will provide a listing to law enforcement agencies upon request. Reports documenting actual field use of the advanced taser are available on the Taser International Web site.

Although less-lethal weapons have been traditionally issued only to tactical teams or supervisory personnel, there's a growing trend to full deployment. First responding officers are often faced with highly volatile situations that demand immediate action. It's necessary for agencies to recognize the legal liability requirements of "reasonable response and action" by first responders to crime scenes.

When immediate action is required officers need to be both trained and equipped to take necessary action. Recognizing this, a growing number of agencies are issuing equipment to patrol that was heretofore reserved for tactical units. As part of this trend, an ever increasing number of agencies are issuing less-lethal weapons directly to patrol officers so they will be immediately available to first responders.

The Sacramento, CA, Police Department is one such agency. The Sacramento PD has announced it will issue an M26 to each patrol officer and detective in the department. Deputy Chief Albert Najera stated, "This is the wave of the future and we are starting out at the front of the pack." The Albuquerque Police Department has also recently announced that it will be issuing the M26 to all of its officers.

Money is tight for most agencies. Several leading agencies have obtained money to fund the deployment of less-lethal technologies through grants. The Sacramento PD deployment of the advanced taser was funded by a grant from the California Department of Justice. Information on TASER International's special police pricing program is available to law enforcement agencies from the manufacturer upon request.

The advanced taser M-series EMD weapons come with a foam-padded hard plastic storage case, practice target, yellow marking stickers, instruction manual and a training CD-ROM. Optional accessories include a Kydex® holster and a dataport/PC adapter cable for the M26.

For information on the ADVANCED TASER contact: TASER International, 7339 E. Evans Road, Scottsdale, AZ 85260 USA; Call (800) 418-9283; Fax (480) 991-0791; or visit the company's Web site at [www.eTASER.com](http://www.eTASER.com).

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