



This Smith and Wesson M&P is one of many high quality handguns that are rail equipped. The rail mounted green laser featured here is aligned under the bore and is adjustable for point of impact. It also features ergonomic fingertip controls and a 100 lumen tactical flashlight; a valuable personal protection option worth serious consideration.



Shedding a Little Light on

LASERS

By Bret Rivers

How to Spot the Right Laser for Personal Protection

Light amplification by stimulated emission of radiation (laser) has been a staple of the science-fiction genre for more than 100 years. In reality, the first working laser was not introduced until 1960.

Lasers amplify light and project it in one non-divergent beam. An energized medium

reflects the light between two mirrors, and allows it to exit out of a small aperture in one of the mirrors. Varying the light source, medium material, and amount of energy directed at the medium creates lasers of different strengths. Laser beams can be used for a variety of tasks, ranging from

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cutting armor plate, to performing microsurgery on human tissue, to simply projecting a visible marker onto the surface of an object.

Lasers and Firearms. Lasers first were used as aiming devices for personal firearms some 30 years ago to increase shooting accuracy. These early firearms lasers were far from user-friendly. In the mid-1970s, elite military teams from the United States, Great Britain, and West Germany discovered that firsthand as they experimented with expensive, bulky lasers that required cables to supply power from the operator's belt-mounted battery pack.

With prices exceeding \$1,000, early lasers weren't affordable, either. In my early days of training anti-terrorist operators, I often wondered if outfitting a \$350 weapon with a top-heavy \$1,200 laser was worth the costs in training time, equipment failures, and limited range.

Fortunately for military personnel, as well as armed civilians and law-enforcement officers, technical advancements in electronics, optics, and materials have resulted

in cost-effective, compact, rugged, and reliable choices in the laser aiming market. Notably absent from this list of beneficiaries are hunters — for the most part, laser aiming devices are not legal for hunting.

Indeed, at the consumer level, the technology's target market is armed citizens who wish to defend their lives and those of their loved ones. To achieve that goal, it is necessary to choose the *right* laser for the job.

Today, there are dozens of makes and models of handgun lasers on the market. Each fits into one of four basic laser categories: trigger-guard-mounted, rail-mounted, grip-mounted, or guide-rod.

Trigger-guard-mounted Lasers. Due to their complete lack of structural integrity, these lasers should not be considered for self protection.

Typically, trigger-guard-mounted lasers have flimsy, poorly designed universal plastic mounting hardware, and remote pressure switches with pigtail wiring that usually attach to the pistol grip with Velcro or an elastic band. The



As opposed to the older red laser technology, a green laser aimer will give you an instantly clear aiming point under almost all lighting conditions. This attacker sees the aiming point located just below the third button of his shirt.

bands and excess wiring create snags and equipment failures at the worst moment. When lives are at risk, do not gamble on a trigger-guard-mounted laser.

Rail-mounted Lasers. These lasers tend to be structurally strong, are available in both daylight-visible green and standard red, and work only on weapons that are equipped with rails. Most manufacturers of modern auto-loading pistols offer railed handguns, but pistols predating the 1990s and most revolvers are not compatible with these designs.

Look for a rail-mounted laser that offers ambidextrous fingertip control as opposed to a pressure switch and extraneous wiring. This will help keep the unit snag-free. Battery life varies widely between makes and models of these lasers; a low-battery indicator light is a helpful feature to look for. Other important features to look for when shopping for a rail-mounted model include adjustability for point-of-impact and the ability to

maintain alignment if the unit is removed from and then placed back onto the rail. Pistols that accommodate rail-mounted lasers often require a special holster when they're carried with the lasers.

Grip-mounted Lasers. These lasers replace, or over-wrap, standard pistol grips. They are sturdy and do not require special holsters. The primary drawback of grip-mounted lasers is that they are offset to one side from the bore of the handgun, which reduces accuracy. Because of their small footprints, these lasers typically use smaller, low-capacity batteries. Because they are limited to the older red-laser technology, they are useful only in low-light conditions.

Guide-rod Lasers. These lasers replace a pistol's factory-installed guide rods, and do not require a special holster. If you own an automatic pistol without a mounting rail, a guide-rod laser is a far better choice than a trigger-guard-mounted laser.

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Most guide-rod lasers have no means of adjusting the point-of-aim to the weapon's point-of-impact; this sacrifices accuracy. Like grip-mounted lasers, guide-rod lasers are small and have very small batteries. To conserve battery power, most guide-rod lasers project a pulsed signal that some users find objectionable. Also like grip-mounted lasers, guide-rod lasers are available only in red, making them useful only in situations in which lighting is poor.

Red versus Green. Having a choice between red or green is a relatively new phenomenon in the world of handgun lasers. Green lasers have a noted advantage over the older red technology due to their high visibility. Green laser aimers appear quite bright in daylight conditions that would render any red laser useless.

However, green lasers also require more space and tend to be more expensive than red lasers.

The secret to the green handgun lasers' brightness does not lie within the laser, but within the human eye. Figure 1 shows our visual spectrum. Green lies directly in the center of the



Figure 1

human vision spectrum, whereas red is on the outer fringe.

Some studies show that our eyes are up to 50 times more sensitive to the color green than they are to the color red. A 5-mW green laser is much easier to see under any lighting conditions, and the green signal is less likely to fade out over distance or in sunlight.

green lasers, you're ready to explore which mount and color combination is best for your protection needs. Table 1 details your choices.

Choosing the Right Laser for the Job. If accuracy is a priority; only rail-mounted lasers consistently provide both the adjustability for impact and proper

Mount Type	Red	Green	Adjustable for point of impact?	In line with pistol bore?	Uses standard holster?
Grip-mount laser	✓	✗	✓	✗	✓
Guide-rod laser	✓	✗	✗ (some cases)	✓	✓
Rail-mount laser	✓	✓	✓	✓	✗ (some cases)

Table 1

Now that you're familiar with the four handgun-laser-mount options (three of which are viable for personal protection) and the differences between red and

bore alignment. They are far more likely to give you a first-shot hit from various distances, rather than a stray shot. Note: because laws vary from state to state, research your state's liability laws concerning self defense when considering a non-adjustable laser or a laser aimer that is offset from the bore.

If you are one of the millions of citizens who have chosen to carry a concealed handgun for self defense, you need to identify the conditions under which you might be likely to encounter a serious threat.

If you anticipate using your laser-equipped handgun only inside your residence, any good quality red or green laser will suit your needs. Similarly, if you are responsible for carrying the day's business proceeds to a night deposit drop at a bank, a red or green laser will work well.

The variety of quality red lasers on the market today is

greater than we have room to list.

If you carry a concealed handgun and know that you may face a threat at any time of the day or night, you should seriously consider a green laser aiming device for your best protection.

As the table indicates, a green laser will require a pistol with a mounting rail. Smith & Wesson, Taurus, Springfield Armory, Walther, and SIG all manufacture high-quality pistols that include mounting rails. Of course there are other makers of railed handguns, too; choose one that meets your price-point that you can trust with your life.

Due to the higher technical demands of manufacturing green lasers, consumers have fewer options.

Because green lasers require more power than red lasers, when choosing a green laser be sure to look for one with a long battery life and a low-battery indicator. To conserve power, some green lasers project only a pulsed signal. If you prefer a constant, rather than pulsed, beam of light, make sure you choose a laser that offers that option.

The experts at your local NBS member store will be able to guide you through the features and options available, and help you choose the handgun laser that best fits your needs.

Personal Responsibility.

Although the very use of a handgun laser creates an "intimidation factor," don't depend on intimidation alone. If you choose to arm yourself, you need to have credible training, regular practice, and the proper mindset. It is very important to train frequently with your laser-equipped handgun under a variety of conditions. It is equally important to understand your legal rights and responsibilities.

Using a laser-equipped handgun is no substitute for training, situational awareness, and good judgment. The lawful use of lethal force is a serious matter. Your

firearms skills are important components in your plan to survive a serious encounter.

In any life-threatening situation, it is human nature to default to using the motor skills that one has mastered. Stress-induced physiological changes vary from person to person, but it is only natural that when we face stress, we automatically focus on the immediate threat.

Focusing on the threat makes us less likely to focus on our weapon sights. Because a handgun laser projects the aiming point onto the target, accurate fire becomes instinctive. The laser aimer on a handgun is a force multiplier that gives its users a higher first-shot hit probability.

If you care enough about your family's safety that you have invested in a reliable handgun and you are considering adding a handgun laser, I am sure you will see the value in spending some extra time practicing your skills should you ever need to use them.

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Learn More

When shopping for a laser, make sure you look to companies that manufacture high-quality products that you can trust — there are many such companies. If you take the time to compare each laser's features and options, you will identify the one that best fits your needs. The firearms experts at your local NBS member retailer also are good resources who can educate you about handgun lasers and other products to help you meet your personal protection requirements. Here are just a few of the Laser manufacturers: Laser Max (www.lasermx.com); Viridian (www.viridiangreenlaser.com); SIGARMS (www.sigsauer.com); American Tactical Imports (www.americantactical.us).

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