# LASER DEFENDER
# a-15

**TMG** *a-15*

RCV  AUTO/QUIET  UDT

**Operation Manual**

# Content

## Introduction

Thank you for purchasing the TMG A-15, one of the most innovative and sophisticated devices in its category today.

Please be sure to read this manual to familiarize yourself with the features and operation of this product. Enjoy the trip and drive safely.

TMG system is a class 1M laser product. Never look at the heads closely while powered on! We recommend wearing Laser protected eye wear, when testing the jamming function with Laser guns.

Motorists are expected to exercise all caution while using this product, and to obey all applicable traffic laws.

**Check your State and local laws on usage.** We encourage you to disable your jamming function as soon as possible once you slow down. This can be done by the RCV button, front power button, or the RCV tab on the app. Running in the "test mode" is meant for laser jamming testing only, and is in full time jamming mode, and could result in suspicion that a LIDAR operator has been jammed. Auto-sleep mode is default, and highly recommended with an Auto-kill feature to "Receive only mode" after 4 seconds. Jamming function can be disabled by adjustable Auto-kill function through the App.

CPU only takes 12V power sources; A 24V power source will damage the product permanently, and will void your 2 year warranty.

## Specifications

Input .......................................................... DC 12V

Laser Wavelength ........................................... 905nm

Optical Peak Power........................................... Up to 75 W

Communication .............................................. BT3.0/4.0 Compatible

Operation Temperature ................................... -10°F~150°F / -25°C~70°C

FCC ID ......................................................... 2ARGWTMGA15

Fuse size ...................................................... 2A 250V Glass
0.2 x 0.78 inch /
5 x 20 mm (2amp) (F2A)

**Tool Requirements**
- T-10 torque bit or allen wrench
- Cordless screw driver- mount the brackets
- Small screws- to mount the brackets
- Velcro or 3m tape to mount the CPU
- Tape measure- measure out the head separation
- Electrical tape - wrap up the head connectors and the wire to feed through the firewall.
- Metal wire to feed the wires through the firewall. (Optional)



Coupler Detent
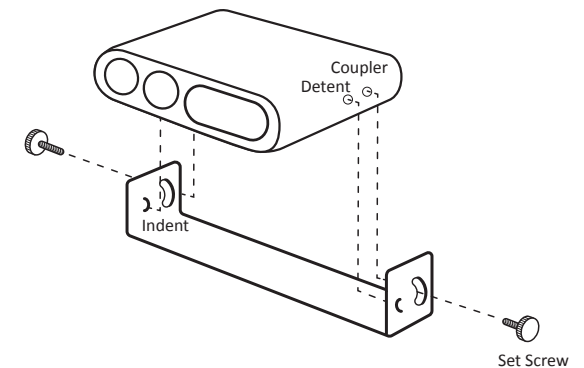
Indent

Set Screw

Detent on transponder lines up with indent on the bracket.
Position is locked into place with the set screw.

# CHAPTER 1: Installation

**❶** Make sure the heads are positioned approximately the same height as the license plate and separated by at least 20 to 32 inches from each other. Being too close together can cause interference.

**❷** Use the included green bubble level tool to make sure the heads are horizontally positioned, and are facing straight forward, and ensure all torque screws are tight.

**❸** When using a third head, install the head in the center of both heads, below the car's emblem or directly above the license plate.

**❹** The CPU computer has a capability of having 8 heads total with an optional splitter.
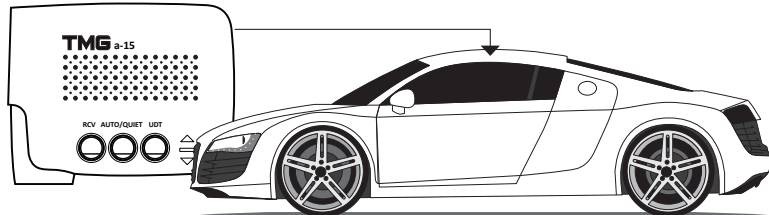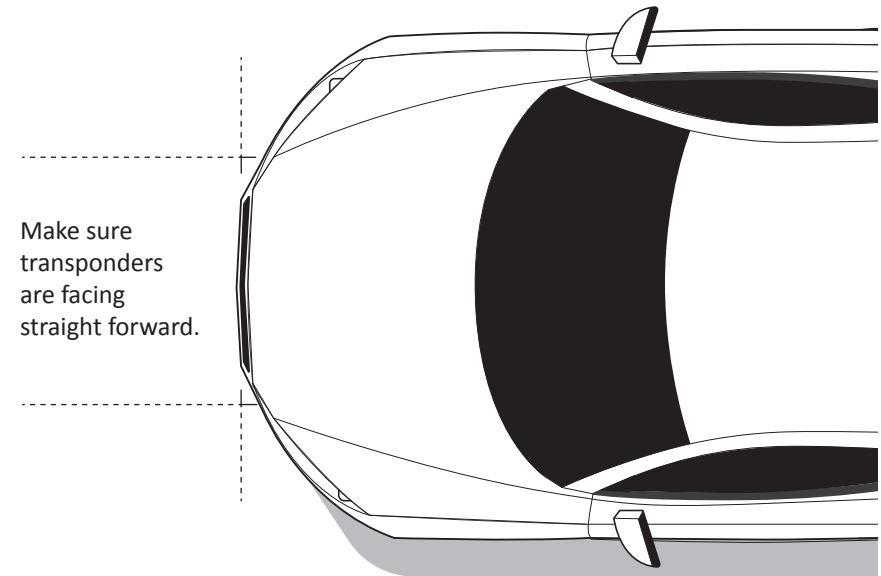
Controller is installed inside the cabin.

24" ~ 30"    24" ~ 30"
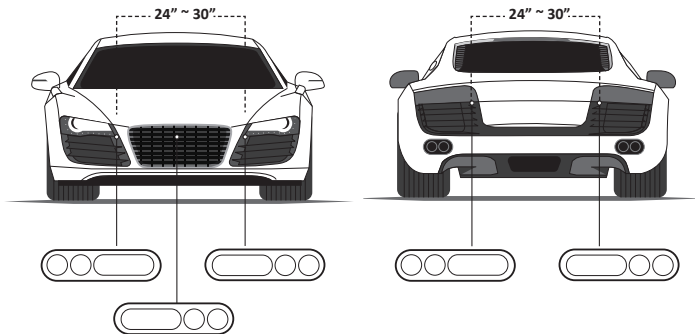
Optional third head for maximum protection.

BMW owners have the option to install the heads vertically. However a third horizontal head is required so you have two vertical outside heads and one center horizontal head. For optimal performance,we recommend horizontal installation of the heads.

Make sure transponders are facing straight forward.

Make sure the heads are horizontally installed by using the bubble level included in the package.
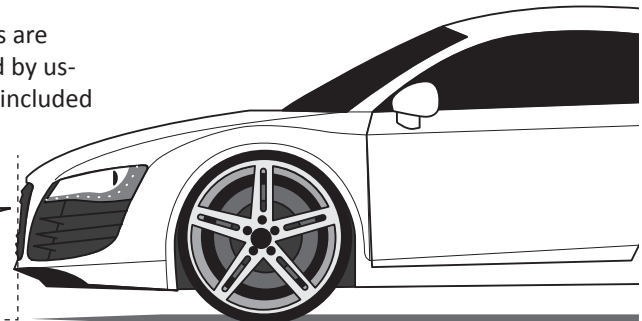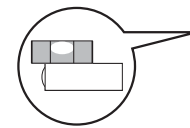
**Cables**
Arrows on cable align for proper fit.

**Changing the Lens cover**
Replace the lenses only as needed. To replace the old lens cover with a new one. Use a pin to pry open the old lens cover to replace it.

**Installation parts list**

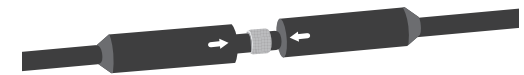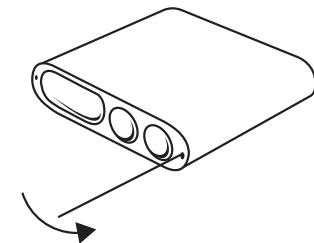| | |
|---|---|
| Trim removal tool | 16g ring connectors |
| Flex claw tool | Add-a-fuse (optional) |
| Flashlight | Heat shrink (assorted sizes) |
| Zip ties | 3M mounting tape |
| Wire strippers | Bubble level |
| 16g plug connectors | |

**Pre-planning**

Determine best location for CPU Controller, parking sensors and wire routing

Tip: It's a good idea to label the connector locations on the parking sensor wires at both the connector end and the sensor head to help with troubleshooting should there be any performance problems down the road.

The following is a loose guideline for hard wiring the TMG

**Installation**

1. Park on level ground
2. Shut off vehicle
3. Disconnect negative battery terminal.
4. Remove trim pieces for access to wiring passages.
5. Run sensor wires from the mounting location to the CPU controller. (Be sure to keep wires secured in the engine bay and away from moving parts).
6. Access to passages through the fire wall can be achieved by piggy backing on an existing wire route.
7. Use flex claw tool to pull wires through the firewall and into the cabin.
8. Any extra length of sensor wire should be coiled loosely and secured with a zip tie to the vehicle, under the dash or behind the glove compartment.
9. Wire the power to either the positive battery terminal or a switchable fuse in the fuse box with an "add-a-fuse". (Be sure to procure the right size add-a-fuse for your fuse bank.)
10. Find a solid part of the vehicle's frame that's in a discreet location, drill a small hole then connect the ground wire to the frame with a loop connector and an appropriately sized machine screw.
11. Mount CPU controller in the cabin in an area where it can be accessed directly.
12. Connect negative battery terminal
13. Start the vehicle
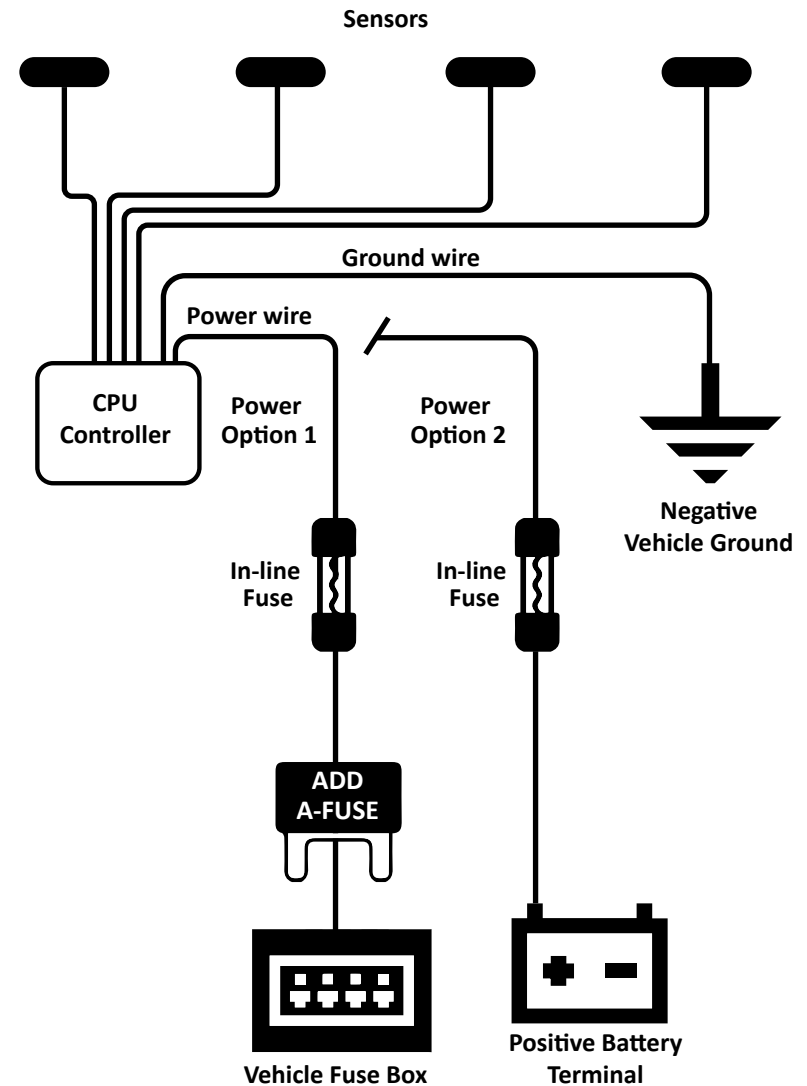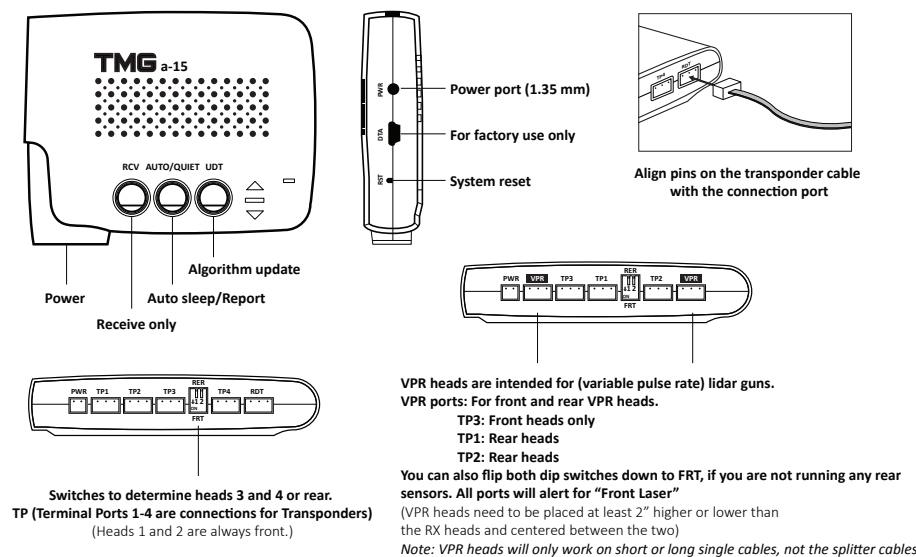
# CHAPTER 2: Operation

**Adjusting Volume**
Press the + and - side buttons to adjust the volume. Press for 1 second to reach the maximum or minimum volume level. (15 is the maximum).

**Receive only Mode**
Press the RCV button to switch to receive only mode. This mode only receives Laser, and does not jam. Pressing the RCV button again will enable Auto sleep mode. Adjustable jamming default is 4 seconds.

**Auto/Quiet**
Pressing one second enables Auto sleep mode, this stops jamming function after selected Auto kill by the TMG Defender Lite App, Or a third party App. Auto sleep mode will take 1 minute to relay back to 4 second jamming from RCV only mode. Use caution for 1 minute because laser alerts will be muted until the CPU announces "Auto sleep mode off". Press the SLP/RPT button for 1 second to report police to the server. "Test mode" is recommended only for testing the jamming capability.



TMG a-15

RCV  AUTO/QUIET  UDT

**Algorithm update**

**Power**  **Auto sleep/Report**

**Receive only**

Power port (1.35 mm)

For factory use only

System reset

**Align pins on the transponder cable with the connection port**

PWR  TP1  TP2  TP3  RER  TP4  RDT
FRT

**Switches to determine heads 3 and 4 or rear.**
**TP (Terminal Ports 1-4 are connections for Transponders)**
(Heads 1 and 2 are always front.)

PWR  VPR  TP3  TP1  RER  TP2  VPR
FRT

**VPR heads are intended for (variable pulse rate) lidar guns.**
**VPR ports: For front and rear VPR heads.**
　　　　**TP3: Front heads only**
　　　　**TP1: Rear heads**
　　　　**TP2: Rear heads**
**You can also flip both dip switches down to FRT, if you are not running any rear sensors. All ports will alert for "Front Laser"**
(VPR heads need to be placed at least 2" higher or lower than the RX heads and centered between the two)
*Note: VPR heads will only work on short or long single cables, not the splitter cables*

The RDT port is for radar detector integration, or other accessories. The side PWR port can be used to power the unit with a 12v barrel connector 1.3 mm.

# CHAPTER 2: Operation cont.

**Algorithm firmware Update** - This firmware uploads the Lidar gun algorithms to the CPU. (Must have strong Internet access) These updates will come available as more Lidar gun firmwares are captured.
1. Connect to your Android or IOS device by the Starting the TMG Laser Defender Lite App instructions mentioned above.
2. Once connected, push the UDT button on the CPU. An audio voice will say "Algorithm update open app and select new algorithm and enable Bluetooth"
3. Press the Alglo update tab on the App, and you will hear an audio voice say "Start transferring" select OK on the instruction screen.
4. The Alglo firmware will load up on top, by the loading bar, followed by the green indicator light flashing on the app, and a blinking UDT CPU button.
5. The CPU will reset,and announce "Update finished or aborted returning to defender mode" to confirm the upload.

**CPU Control Firmware-** This firmware uploads changes, or updates in the CPU only. (This is not a common firmware to update)
1. Power on the TMG a-15 CPU, and pin the RST button on the side of the CPU for 2 seconds. A small red constant LED will appear on the CPU.
2. Open the TMG Defender Lite App and Connect to your device by Bluetooth.
3. Press the CTRL update tab on the App,and select OK.
4. "Start transferring" audio will announce.
5. The firmware will upload,followed by the small red LED flashing on the CPU,green indicator flashing on the app
6. An Audio voice will announce "System On" with a power cycle to confirm the update.

# CHAPTER 2: Operation cont.

**App operation**

The TMG a-15 system can be paired with a Android or IOS device. The following apps are available, TMG Defender Lite App on Android and IOS.
JBV1 Android app, paired with a Valentine One Radar detector, and TMG Remote on Android. JBV1, and TMG Remote are made by John Boy Software.

Starting the TMG Laser defender Lite App on Android or IOS
1. Power on the TMG a-15 CPU
2. To begin pairing,press the Bluetooth icon on the far right side of the app.
3. Select scan,and choose the "LD" that appears,and type 1234 as the password. 0000 is also another password to try.
4. The blue Bluetooth light on the CPU will light up. You are now connected.
5. From the App you can have full access to the CPU buttons,adjust Auto-kill seconds,Adjust the sleep time in between alerts.
6. You can now update gun algorithms, and CPU control firmware.

*Note- The firmware servers are only available on the TMG Laser Defender Lite App.*

**Algorithm update** (Must have Internet access)

This firmware uploads the Lidar gun algorithms to the CPU. (Must have strong Internet access) These updates will come available as more Lidar gun firmwares are captured.
1. Connect to your Android or IOS device by the Starting the TMG Laser Defender Lite App instructions mentioned above.
2. Once connected, push the UDT button on the CPU. An audio voice will say "Algorithm update open app and select new algorithm and enable Bluetooth"
3. Press the Alglo update tab on the App, and you will hear an audio voice say "Start transferring" select OK on the instruction screen.
4. The Alglo firmware will load up on top, by the loading bar, followed by the green indicator light flashing on the app, and a blinking UDT CPU button.
5. The CPU will reset,and announce "Update finished or aborted returning to defender mode" to confirm the upload.

# CHAPTER 3: Troubleshooting

**Q: The CPU is not powering on?**
A: Make sure the power port is plugged in snug. Make sure all electrical wires have good connections,Check for a blown fuse in the hardwire power cable.

**Q: Why aren't my heads receiving a Laser alert when shot by Police?**
A: Make sure your Volume is turned up high enough to hear over road noise and loud music,and is not on zero. The Officer may have not targeted you specifically,or pulled the trigger. Make sure your sensor cables are all plugged in, and lined up correctly by the arrows. A laser tester will confirm a Laser alert. A faulty head will not alert to Laser.

**Q: Why is my CPU locked up?**
A: Try a soft reset by a 1 second push on the RST button. The firmware did not upload correctly, The CPU case was smashed causing a button to be stuck. CPU notices a bad head.

**Q: How do i know if i have a bad sensor,or the sensor has head failure?**
A: The CPU can lock up, The CPU bluetooth light will randomly flash rapid upon start up, The fuse in the hardwire will keep blowing. The sensor will run hot compared to the others. Please call Customer support for a replacement.

**Q: Why does the CPU keep announcing "Algorithm update" and is frozen?**
A: Try to re-upload the Alglo,or CPU control firmware.

**Q: Why will the App not load up a firmware?**
A: Make sure your device has a 4G service, or a strong WIFI connection. Make sure you are not in a third party app.

# CHAPTER 4: Two Year Limited Warranty

For a period of two years from the date of purchase by the consumer Facets will repair or replace, at Facets discretion, defective Facets products upon delivery to Facets or an authorized Service agent. Facets products must include a proof of purchase with the date it was first purchased from an authorized dealer, such as a copy of a sales receipt.

The customer must pay for shipping Facets products to an authorized Facets Service Agent. If the product is proven to be under warranty, the return charge, to the customer, will be at our expense.

**This limited warranty does not apply:**
To any product damaged by accident.
In the event of misuse or abuse of the product.
As a result of unauthorized alterations or repairs.
If the serial number has been altered, defaced, or removed.

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# CHAPTER 5: Appendix

**Protection**
Here is a collection of laser/lidar guns we have tested. Our laser jammer works for other similar ones. The coverage is increasing and we always keep our products promptly updated.



**Attention**
When testing the system at any time, such as on a bench or a temporary install, unwrap all cables. Testing with the cables wrapped up can cause a magnetic field, and the heads performance may be compromised.