

User Guide

WARFET

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www.gatee.eu



GATE Menet, Wojtak Sp. J. does not take any responsibility for damages, injuries and accidents resulting in the use of WARFET or Air Electric Gun with installed WARFET.

Notice

Information contained in this document is subject to updating without notice.

FOR YOUR OWN SAFETY, PLEASE READ THIS USER GUIDE CAREFULLY BEFORE INSTALLING THE AEG CONTROL SYSTEM

Safety Summary

THE DEVICES COVERS MUST NOT BE REMOVED BY THE USER

DANGER!

Short-circuiting of battery packs. Caution must be exercised to prevent short circuiting the battery as the consequences can be very dangerous.

FOR YOUR SAFETY

We recommend that this product should be installed by an experienced airsoft service.

WARFET User Guide

WARNING: Before starting installation process, please ensure that your AEG is empty and there are no BBs inside.

WARNING: Always use a fuse between the battery and the controller.

WARNING: Incorrectly connecting positive and negative battery terminals will cause immediate damage to the unit and it can lead to fire.

NOTE:

Please check if you have downloaded the latest manual from the **Technical Support** section of our website: www.gatee.eu.

The **Product Warranty Form** is also available on our website: <http://www.gatee.eu/en/rma-2>

In case you have any difficulties while installing or using this product, we recommend to email us at support@gatee.eu.



PRODUCT DISPOSAL INSTRUCTIONS

The symbol shown here means that the product is classed as Electrical or Electronic Equipment and should not be disposed with other household and commercial waste at the end of its working life. The Waste of Electrical and Electronic Equipment (WEEE Directive 2002/96/EU) has been put in place to recycle products using best available recovery and recycling techniques to minimize the impact on the environment. Purchasers shall take any old electrical equipment to waste recycling public centers or points of sale.



CERTIFICATE OF CONFORMITY

GATE Menet, Wojtak Sp. J. hereby declares under our sole responsibility that the product GATE WARFET is in conformity with the essential requirements of the following Directives:



EMC DIRECTIVE 2014/30/UE

This product has been certified as RoHS Compliant.



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I. Overview

WARFET is GATE's most advanced AEG Control System. It has 20 functions and almost 6 million possible configurations. The outstanding Tactical Programming Card provides you with very easy access to the AEG Controller settings. Thanks to the PRE-COCKING and SMART TRIGGER functions, you can achieve a trigger response similar to a real gun. The Programmable Burst (1-5 rounds) enables you to fire a pre-determined number of BBs, which is very useful in MILSLIM and for using low-caps. Another function is ROF Control, which allows you to reduce ROF, so you can use strong LiPo batteries, and still have ROF just like in a real rifle. If your AEG becomes jammed, the SMART FUSE protects the battery and the motor against damage. It also prevents deep battery drain. Moreover, with WARFET you get: MOSFET, ON/OFF ACTIVE BRAKE, BUILT-IN SELF TEST, DEBOUNCING, and more. Many useful functions, great electrical specifications and conformal coating (military specifications: MIL-V-173C) make the AEG Control System able to meet the needs of most experienced airsoft players.

Features

- User-friendly configuration via the Tactical Programming Card
- Sturdy and super-small size AEG Controller
- Compatibility with the strongest AEG replicas and batteries (ready to work with LiPo 14.8V, 5000 mAh, 60C)
- Tested with car batteries
- Super-easy installation - thanks to the Mini Tamiya adapters, you can connect WARFET to the original (stock) installation
- It can work with most built-in MOSFETs
- With stock wiring, WARFET reduces melting switch assemblies

- In hardwired installation, WARFET draws the energy from the battery directly to the motor, bypassing the mechanical trigger contacts
- Resistant to atmospheric conditions (military specifications: MIL-V-173C)
- Deep-drain protection for 7.4V, 11.1V, 14.8V LiPoly and 9.6V, 12.8V LiFePO4
- Improves battery life, ROF, spring life and gearbox reliability

AEG Controller parameters

- Wide range of supply voltage: 3-17V
- Protection against short-circuits: up to 1000A
- Incredibly low current consumption on stand-by: 0.2mA
- Ultra low resistance: 2m Ω
- Dimensions: 56x20x9mm
- Weight: 9.4g

Tactical Programming Card overview

The outstanding Tactical Programming Card provides you with very easy access to the AEG Controller settings. All you need to do is to connect the Tactical Programming Card between the battery and the controller. A big advantage is that there is no need to use any additional wires. The AEG Controller can be fitted out of view in your AEG, and you still have easy access to its settings. The Tactical Programming Card communicates with the AEG Controller and displays the most recently saved settings. You can simply change them using three buttons.

Tactical Programming Card parameters:

- Supply voltage: 5-17V
- Dimensions: 67x53x7mm
- Weight: 27.3g
- Number of LEDs: 29
- Number of buttons: 3



Key functions:



TACTICAL PROGRAMMING CARD

The outstanding Tactical Programming Card provides you with very easy access to the AEG Controller settings. All you need to do is connect the Tactical Programming Card between the battery and the Controller.



PRECOCKING

Victory in the game is often a matter of fractions of seconds. Thanks to the PRE-COCKING, you gain a trigger reaction similar to a real gun. It allows for initial spring compression, which speeds up the trigger response significantly. You can set the time of PRE-COCKING using the Tactical Programming Card.

There are two PRE-COCKING MODES:

- 1) AUTO MODE – the spring is automatically compressed after each shot,
- 2) TRIGGER MODE – the first trigger action compresses the spring, and the second trigger action fires the shot.

Please note: using PRE-COCKING increases wear and tear on the gearbox. PRE-COCKING is designed for SEMI mode. In the AUTO mode, it can result in blank shots.



Plug&Play

Super-easy installation, just plug and play. No soldering required. All you need to do is to connect the battery and the rifle to the AEG Controller.

1-5rd Burst



The burst enables you to shoot a pre-determined number of BBs (1-5 rounds), which is very useful in MILSLIM and when using low-caps. You can transform AUTO MODE to BURST MODE or SEMI MODE to BURST MODE*. The Tactical Programming Card allows you to set the burst time. The AEG Controller automatically corrects the burst time according to the voltage level of the battery.

*SEMI to BURST in modified installations only.



CONFIGURABLE FIRE SELECTOR

The function gives you the option to program your fire selector. There are five operating modes:

- STOCK WIRING SEMI/AUTO
- STOCK WIRING SEMI/BURST
- MODIFIED WIRING SEMI/AUTO
- MODIFIED WIRING SEMI/BURST
- MODIFIED WIRING BURST/AUTO



ROF CONTROL

It enables lossless reduction of the rifle's rate of fire, so you can use strong LiPo batteries, and still have ROF like in a real gun.



SMART TRIGGER

We know how vital the fast trigger response is during combat. This is why we have developed the Smart Trigger function. It enables you to achieve a faster trigger response. It works with the ROF Control system. During the first shot, the microprocessor sets the ROF Control to 100%. After the first shot, it switches to a previously programmed value (e.g. 50%). As a consequence, the first shot is fired at a full rate of fire, and subsequent shots at a reduced ROF. The best results can be achieved by using a battery with a higher than standard voltage. For example, if you use a 7.4V battery, you can replace it with 11.1V. In this way, you will achieve a faster trigger response with the same rate of fire as with a standard battery. The Smart Trigger is most effective when the Burst time is set at 3 rounds.



BATTERY PROTECTION

Protection against Over-Discharge of the Battery. Modern LiPo and LiFe batteries are very sensitive to over-discharge. If you do not want to damage the battery and you care about its service life, this protection is indispensable. The microprocessor monitors the battery voltage constantly. When the voltage drops down to a critical level, the Controller will not allow firing.





SMART FUSE

The new AEG Controller should never let you down on the battlefield. It is the best electronic fuse. The AEG Controller has a true current sensor. A combination of current, voltage and temperature measurements makes your AEG installation highly reliable. If your rifle becomes jammed, the SMART FUSE protects motor and battery against damage. Overheating, overloading or short-circuiting of the electrical system should not damage the Controller.



ON/OFF ACTIVE BRAKE

The Controller provides you with the opportunity to decide if you want to use the Active Brake function. If you do not need this, you can turn it off easily. It will lead to improving the lifespan of your motor.



ACTIVE BRAKE

Do you care about realism? Would you like to increase the life of the gearbox? Does your rifle have such a high rate of fire that you are not able to make a single shot? The Active Brake sorts things out. In SEMI Mode, the brake does not allow for compressing a piston after a shot. The piston will stop in the front position which eliminates unnecessary stresses, increasing the service life of the gearbox and its parts. This is important, especially with an AEG power upgrade. After releasing the trigger, the rifle immediately stops firing. So, you gain more realism and, additionally, you do not waste your precious ammunition.



MOSFET

Do you want to achieve a higher rate of fire and faster trigger response? Are you planning a power upgrade of your rifle? In that case, you need a MOSFET. It targets the energy from the battery directly to the motor, bypassing the mechanical trigger contacts. As a result, you gain a higher rate of fire of the rifle and a faster trigger response, and the contacts are protected against burn out.



DEBOUNCING

This provides full compatibility with the micro-switches. It ensures full resistance to contact bounce (vibration). You gain a bigger ROF, a faster trigger response and your MOSFET is less prone to overheating.





BUILT-IN SELF-TEST

It allows you to quickly check whether the AEG Controller works properly. If you have problems with your AEG, the BUILT-IN SELF-TEST allows you to check that the problem is not caused by the Controller.



3rd GEN MOSFET

The advent of modern transistors and microcontroller has enabled us to create the smallest and most reliable AEG Controller on the market.



DARK MODE

DARK MODE allows you to turn off the LED indicator which glows green when a gun is firing. This function is especially useful during night games.



COATING

Thanks to its special conformal coating, it is resistant to atmospheric conditions (Military Specification MIL-V-173C).



14.8V Li-Po Ready

The system can be used with batteries up to 14.8V LI-PO. Minimum operating voltage is 3V and maximum voltage is 17V.



HARDWIRED

In the case of a hardwired installation, the Controller draws the power from the battery directly to the motor, bypassing the mechanical trigger contacts. This requires a modification of the AEG installation.



MINI TAMIYA READY

Thanks to the Mini Tamiya Adapters included in kit, you will be able to smoothly connect WARFET to your original installation.



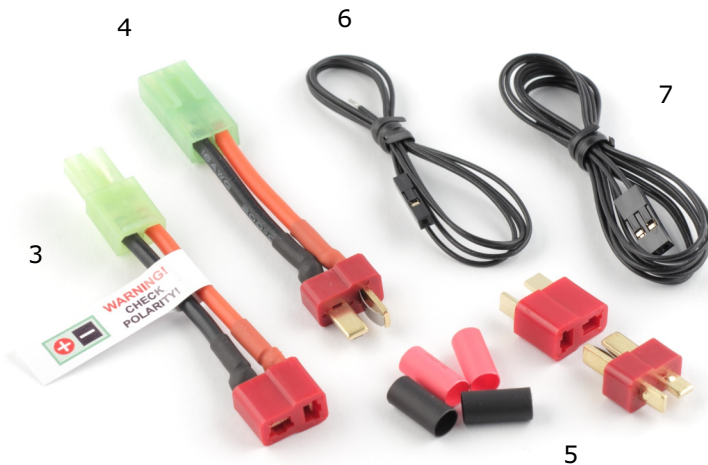
PRINTED QUICKSTART

It makes easier starting your adventure with WARFET. The quickstart contains basic information and hints.

Package contents

Check the product box for following items:

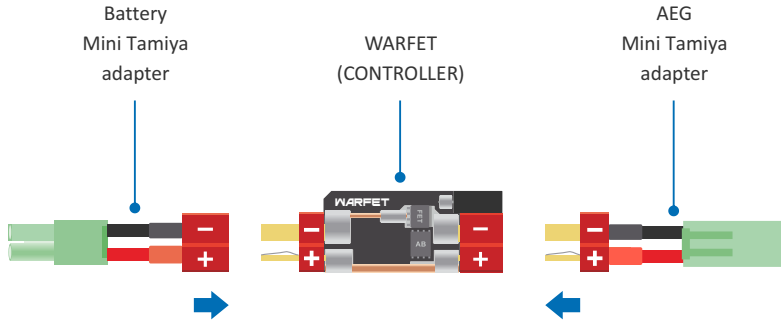
- 1) Tactical Programming Card
- 2) AEG Controller
- 3) Battery Mini Tamiya adapter
- 4) AEG Mini Tamiya adapter
- 5) Pair of Deans-T Connectors
- 6) Single Trigger Wire
- 7) Double Trigger Wire
- 8) Quickstart Guide



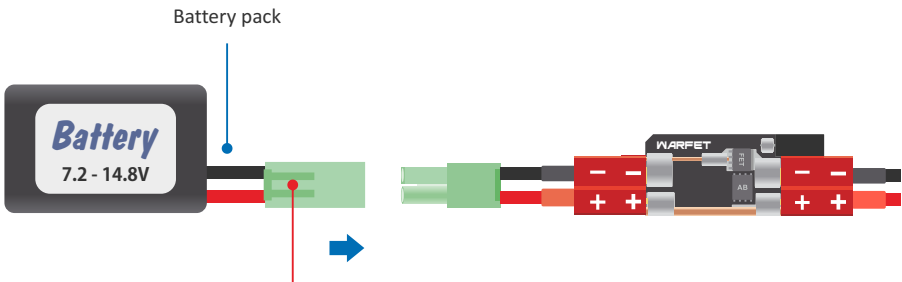
II. Plug & Play Installation

Steps:

1. If necessary, connect Mini Tamiya adapters (included in the kit) to WARFET.



2. Connect the battery to WARFET. The LED indicator glows BLUE for 1 second.

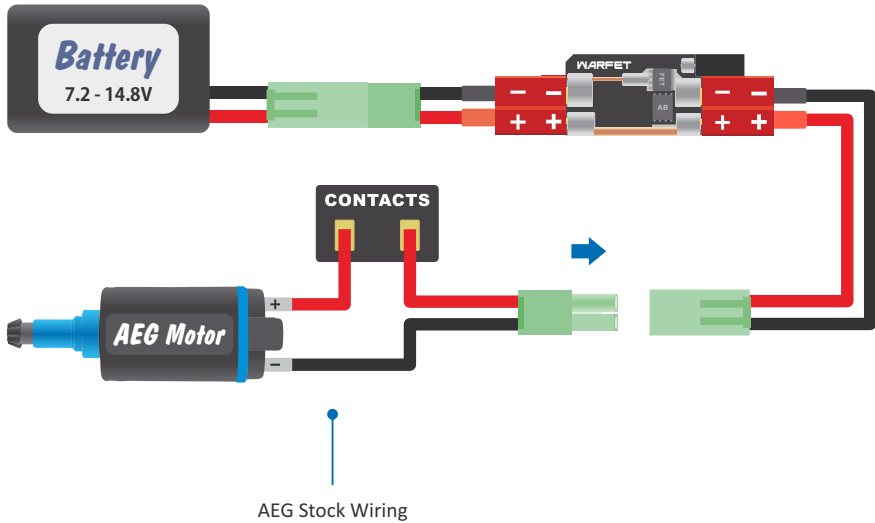


WARNING!
CHECK POLARITY!



Incorrectly connecting positive and negative battery terminals will cause immediate damage to the unit and it can lead to fire. **For your own safety, always use a fuse between Battery and Controller.**

3. Connect the AEG to WARFET.



4. Pull the trigger. The AEG should start firing. While firing, the LED indicator should glow GREEN*. If the AEG is not firing and/or LED indicator glows different colour please check troubleshooting (page 20).

*only when DARK MODE OFF

5. To change settings go to chapter IV (Programming Card usage).

III. Hardwired Installation

Steps:

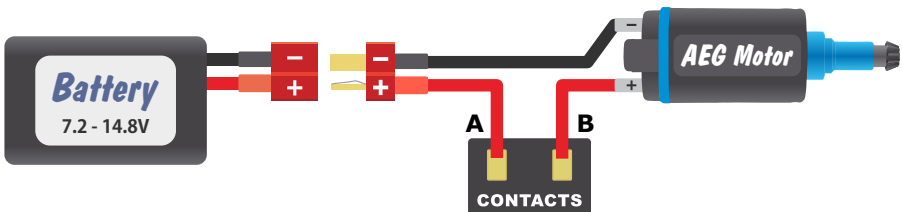
1. Switch operating mode.

To be able to work with Hardwired Installation, necessarily go to chapter IV (Programming Card usage, p. 18) and switch operating mode to MODIFIED WIRING.

SEMI AUTO	SEMI BURST	SEMI AUTO	SEMI BURST	BURST AUTO
STOCK WIRING		MODIFIED WIRING		

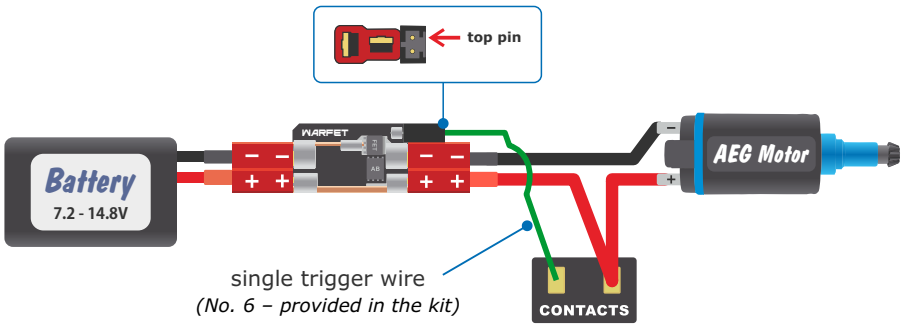
2. Adapt AEG installation.

To adapt the standard AEG installation to work with WARFET in hardwired mode it is necessary to get to the trigger contacts. In the case of GB v2 these contacts are located inside a gearbox. With a version 3 gearbox, the installation will be easier because the contacts are on the outside of the gearbox. Please consult a local airsoft technician if you have never disassembled a gearbox before or if you have any installation concerns.



(Fig 1 – Standard AEG wiring scheme)

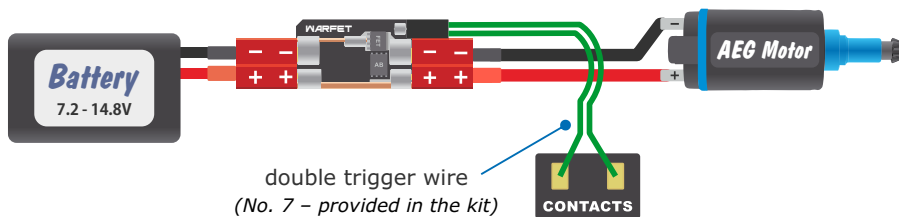
a) Installation of WARFET without replacement of wires. Using this method, the original wiring is kept intact, and the connections are modified. Referencing Fig 1, de-solder A wire from the one of the trigger contacts and then solder it to the B wire. It does not matter which wire you disconnect from the trigger switches, just join the two wires together at one terminal. In the place of the A wire, solder the additional single trigger wire (No. 6 – provided in the kit). The trigger wire is very thin because it handles very low current and it is only used for switch-detection. Now connect the device between the battery and AEG. Do not forget about the trigger wire. Connect it to the top pin.



(Fig 2 – Connection-modification scheme)

b) Installation of WARFET with replacement of wires.

Replacing the existing AEG wiring with high-quality, low-resistance wiring in conjunction with the installation of a MOSFET allows for the ultimate in system efficiency. 16 awg or thicker wire is recommended. Solder the dualtrigger wire (No. 7 – provided in the kit) to the trigger contacts. The trigger wire is very thin because it handles very low current and it is only used for switch-detection. Now connect the device between the battery and motor. Do not forget about the trigger wire.



(Fig 3 – Complete re-wiring scheme)

Your AEG is firing without pulling the trigger? Go to chapter IV and switch operating mode to MODIFIED WIRING.

IV. Tactical Programming Card usage

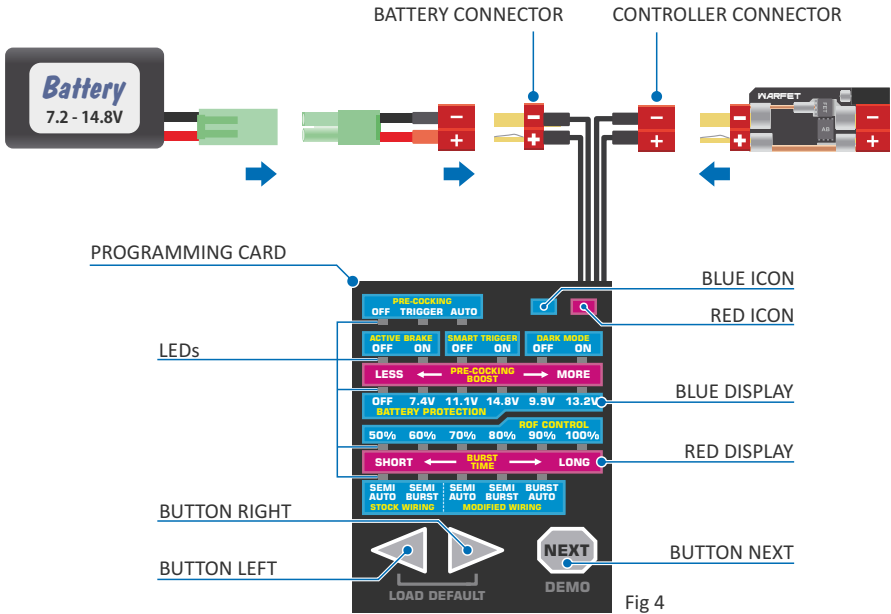


Fig 4

Instructions:

1. Connect the battery to the Programming Card. The LEDs light on and start blinking (Fig 4).
2. Connect the Controller to the Programming Card. All current settings are displayed on the corresponding LEDs (Fig 5).
3. When the **BLUE ICON** is on, check only on the blue display of the Programming Card (Fig 5).
When the **RED ICON** is on, check only on the red display of the Programming Card (Fig 6).

4. Click and hold button NEXT to watch DEMO.
5. Click button NEXT to switch between functions and displays.
6. Click buttons LEFT or RIGHT to switch options.
7. Click and hold buttons LEFT or RIGHT to switch options more quickly.
8. Before firing, disconnect the Programming Card and connect the Controller to the battery.
9. All the settings are saved automatically.
10. Click and hold buttons LEFT and RIGHT to load default settings.

How to read settings? Take a look at the examples below:

Example 1. The BLUE ICON glows. Check only on the blue display.

PRE-COCKING	- OFF
ACTIVE BRAKE	- OFF
SMART TIGGER	- OFF
DARK MODE	- OFF
BATTERY PROTECTION	- 7.4
ROF CONTROL	- 100%
STOCK WIRING	- SEMI AUTO

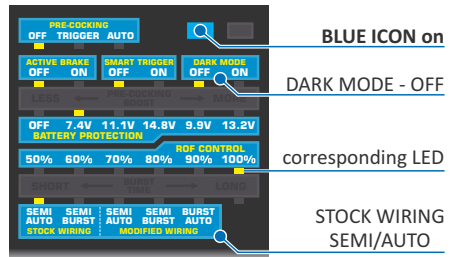


Fig 5

Example 2. The RED ICON glows. Check only on the red display.

PRE-COCKING BOOST	- maximum value
BURST TIME	- minimum value

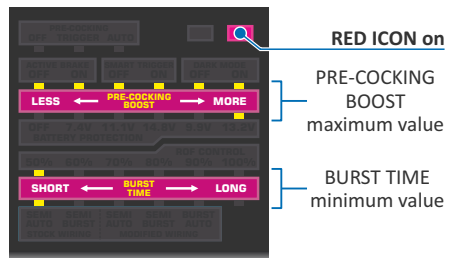


Fig 6

TROUBLESHOOTING

MALFUNCTION	POSSIBLE REASON	WHAT TO DO
After connecting the battery to the Controller, the LED indicator does not light on. WARFET does not react.	The battery is discharged. No contact with the battery.	Charge the battery. Clean the battery connector. Clean the Controller connector.
After a trigger action, the LED indicator glows red. Even though the motor is connected, the AEG does not fire.	The battery is discharged. The BATTERY PROTECTION function is badly programmed. No contact with the battery. A short-circuit between the signal wires and the motor wires (in Hardwired Installation only). A short-circuit of the motor wires. A short-circuit of the motor.	Charge the battery. Program the BATTERY PROTECTION function correctly. Clean the battery connector. Clean the WARFET connector. Check and repair the signal wires insulation and the motor wires insulation. Connect another motor.
After a trigger action, the LED indicator blinks red. Even though the motor is connected, the AEG does not fire.	A permanent damage to the Controller.	Contact GATE Technical Support: support@gatee.eu

⚡ PLUG&PLAY INSTALLATION ⚡

The WARFET does not react to any trigger action. The AEG does not fire.	The battery is discharged. No contact in the switch assembly. No contact with the motor connectors. The motor wires are broken. The motor windings are broken.	Charge the battery. Clean the switch assembly. Clean the motor connector in the Controller. Check the motor connectors. Repair the wires. Repair the motor or replace it with a new one.
After a trigger action, the LED indicator blinks green shortly. Even though the motor is connected, the AEG does not fire.	A weak contact with the contact cube. A weak contact with the motor connectors. The motor wires are damaged. The motor windings are damaged.	Clean the contact cube or replace it with a new one. Clean the motor connector in the Controller. Check the motor connectors. Check and repair the motor wires. Repair the motor or replace it with a new one.

After a trigger action, the LED indicator glows yellow. Even though the motor is connected, the AEG does not fire.	The WARFET is set on the Modified Wiring mode.	Reprogram the WARFET for the Stock Wiring mode.
After connecting the motor to the Controller, the AEG starts firing immediately.	A short-circuit in the switch assembly.	Check and repair the switch assembly.

ⓘ HARDWIRED INSTALLATION ⓘ

The WARFET does not react to any trigger action. The AEG does not fire.	<p>The WARFET is set on the Stock Wiring mode.</p> <p>No contact with the Signal Socket.</p> <p>No contact with the switch assembly.</p> <p>A short-circuit or break in the trigger wire (from the switch assembly).</p>	<p>Reprogram the WARFET to the Modified Wiring mode.</p> <p>Clean the Controller Signal Socket.</p> <p>Clean the switch assembly or replace it with a new one.</p> <p>Repair the trigger wire or replace it with a new one.</p>
After a trigger action, the LED indicator glows yellow. Even though the motor is connected, the AEG does not fire.	<p>No contact with the motor.</p> <p>The motor wires are broken.</p> <p>The motor windings are broken.</p>	<p>Clean the Controller connector.</p> <p>Check and repair the motor wires.</p> <p>Repair the motor or replace it with a new one.</p>
After connecting the motor to the Controller, the AEG starts firing immediately.	The WARFET is set on the Stock Wiring mode.	Reprogram the WARFET to the Modified Wiring mode.

GATE Limited Warranty Policy

GATE Menet, Wojtak Sp. J. warrants that this Product is free from manufacturing and material defects at the date of purchase and for a period of one (1) year from the date of purchase and it is not-extendable. This Limited Warranty concerns both the Controller and the Tactical Programming Card and is conditioned upon proper use of them by Purchaser.

1. This Limited Warranty is valid provided that the owner provides a proof of purchase and properly completed warranty form. The warranty form is available on our website: <http://www.gatee.eu/> .

2. This Limited Warranty does not cover: (a) defects or damage (eg. mechanical, thermal or chemical) resulting from accident, misuse (misinterpretation of the instructions), abuse, neglect, unusual physical, electrical or electromechanical stress, water immersion, repairs or structural modification of any part of Product (eg. heat-shrink tube removal), or (b) the Product that has the serial number removed or made illegible (the serial number is placed on the Controller and the Tactical Programming Card). The serial number of the Tactical Programming Card is the same as the Controller's; (c) defects or damage from improper operation, maintenance or installation, (d) installation of the products.

3. Requests for warranty are processed as soon as possible, not exceeding seven (7) working days. The company's obligation under this Limited Warranty shall be limited to providing replacement of part/s only.