Ke-M12-E3301 Weapon Subcomputer

Designed by Chusa Kage Yaichiro and Project THOUGHT in YE 33 for the weapons used by the Keiko Thought Armor and the Kirie Thought Armor, the E3301 Weapon Subcomputer does not replace the standard E3300 Compact Integrated Electronics System (CIES), but instead is installed in weapons and allows communication with them.

The system is a small computer intended for a weapon, usually located in the grip of a handheld weapon or near the hardpoint connector of a mounted weapon, that contains basic control information about the weapon and allows the THOUGHT Control and Sensory Interface (CSI) to manage elements of it without adding extra buttons nor allowing enemies to easily use captured weapons. It utilizes encryption and various types of communications. Settings are stored on the Thought Armor rather than on the weapon.

Nomenclature Information

Designer: Chusa Kage Yaichiro Manufacturer: Star Army of Yamatai and Ketsurui Fleet Yards Name: PT-M2-E3301/Ke-M12-E3301 Weapon Subcomputer Type: Compact Handheld Weapon Management and Communications System

History and Background of the Weapon Subcomputer

The very concept of a Thought Armor is based around removing inefficiencies and optimizing response time, and this concept was extended to the design of their weaponry. Early on it was decided that things such as adjustable zoom, mode selection, and safeties would be managed directly by the Thought Armor and communicated to the weapon, rather than having the pilot be distracted for a time by fiddling with the weapon's settings via buttons and paying less attention to their environment for that time. It was soon realized that the concept had another boon – removing tactile input from the weapon removed moving parts, reducing the cost and complexity of the weapon and improving structural integrity in some cases since fewer holes had to be drilled for input devices. The system could also be used to manage weapons connected to the Thought Armor's hardpoints, though using direct connections rather than wireless or quantum communications.

Early concepts and mockups of weapons even lacked any physical trigger, instead relying on thought alone to fire. Unfortunately, rookies who were given the highly responsive weapons for testing were found to need that extra split second before firing to properly verify the identity of their targets in some cases. Because of this, weapons using the Weapon Subcomputer still have physical triggers which are still used to actually open fire. A pilot with sufficient skill and training can alter their configuration to be able to fire by thought alone without pulling the trigger, though this is not often used except by those with ample training due to the risk of friendly fire. It can, however, allow a pilot to leave a weapon or device behind and activate it from a distance.

Early versions of the system can have the nomenclature PT-M2-E3301, indicating pre-KFY adoption.

About the Weapon Subcomputer

Usually installed in the grip of handheld weapons and near the physical hardpoint connections of mounted weapons; the Weapon Subcomputer is designed to allow a pilot to manage the modes, safety, of their weapon by thought. This prevents them from needing to stop and check the setting of their weapon, or press buttons to change the setting. It also allows very precise tuning of the targeting system depending on a given situation. This is all managed by networking with the THOUGHT Control and Sensory Interface (CSI), which can also hold configuration preferences for the weapons. Because of this, a pilot who uses the same Thought Armor but changes weapons of the same type will have their configuration settings preserved.

Communications

The subcomputer can use an array of communications systems to connect to the Thought Armor, depending on the hardware available. These include:

- Wired Communication
- Quantum Communication
- Extremely Short Range Wireless Communication

Wired communication is for hardpoint-mounted weapons as well as weapons that tether to the machine for power. Quantum Communication is a standard communication method which allows for communicating with the weapon at range in special instances. The Wireless Communication system is an advanced system which works within only a meter of the Thought Armor's hands and allows the weapon to communicate with the Thought Armor without giving away its position. It is also powerful enough within that tiny range to overpower jamming efforts, and will lower its range according to need. A weapon held in the hand will communicate with the computer in the grip at such a short range that the signal will not escape the hand. It should be noted that when first interfacing with a Thought Armor, the weapon and the Armor also set up an encryption protocol which is different every time to prevent hacking attempts.

Scope Management

The scope of a weapon equipped with this system is controlled by the Thought Armor's software and allows very fine adjustment and targeting, replacing the physical knob which used to adjust the weapon's scope. Rather than looking through an optic, the weapon is able to send video data of the image in real time to the Thought Armor and the pilot inside. This allows the weapon to be more easily aimed in unconventional ways where the pilot isn't looking with the head optics through a conventional scope, such as around corners while revealing as little of the Thought Armor as possible to the enemy. It is also possible to triangulate the scope's optic with other optical data such as the Thought Armor's own optics and deployed Nodal Support Drones to increase the accuracy of a shot.

Mode, Intensity, and Safety(MIS) Management

MIS Management, named such as a joke as much as for its function, is the software that controls the weapon's state. In 'Mode 0', the weapon is unable to fire, and this is considered its 'Safety Mode' and is the default setting until the weapon is interfaced with a Thought Armor's integrated Electronics System (IES) and changed by the pilot. When disconnected from a Thought Armor's IES, the weapon defaults back to Saftey Mode. Due to this, the weapon cannot be fired by an enemy who has obtained it, and it acts as an automatic safety for the weapon.

The modes' numbers increase from there, corresponding to the various modes of operation and intensity. For example, "Mode 2.095" corresponds to the second operating mode of a weapon aside from its Safety Mode, at 95% intensity. Extra digits can correspond to decimals of percentiles, and extra decimal points break up the number for additional attributes. Note that the modes are presented more intuitively for the pilot and are different depending on the weapon – these are merely how the computer interprets them. These modes include Low Power Mode settings.

Feedback Management

The subcomputer is able to send data back to the Thought Armor, and typically relays information about the weapon aside from scope/optical information. This often includes how many shots remain in a weapon, the current MIS Management settings, damage taken by the weapon if any, temperature if applicable, and other things relevant to the weapon. Some weapons sample unique things like wind direction and speed, outside temperature, or the presence/lack of atmosphere.

Some circumstances will inhibit the weapon's operation unless overridden by the pilot, such as too much damage locking the safety on, or the safety coming on if atmosphere is detected outside of an antimatter weapon. Other things will support the weapon's operation, such as a wind direction/speed detector aiding in the use of an in-atmosphere Sniper Rifle.

Trigger Management

Trigger Management is the system which allows the subcomputer to discharge the weapon, and prevents the discharge unless certain conditions are met. This works closely with MIS Management, especially the Safety element. Some things can be altered by override with appropriate permissions, but others cannot. Altering by override is not recommended except for specific situations or except when the pilot is extremely skilled and knows exactly what they are doing. *Rookies should not change these settings.*

The unchangeable options are intended to prevent enemies from utilizing weapons even if they fall into enemy possession. The odds of their having a Thought Armor's software and current identification codes are lowered as the computer is in the Thought Armor's FTL-capable Pilot Pod. The ones that can be altered are generally for ensuring proper management of the weapon and preventing pilot error. Editing the options isn't difficult and can be done with a quick series of thoughts while on the battlefield, but requires a deliberate effort on the pilot to override the system after being informed of the dangers.

In some cases, it may be appropriate to edit these options, such as when leaving a weapon behind to be

operated remotely, sometimes to discharge as a position-based trap or to overload as an improvised bomb. Any changes are stored in the Thought Armor's computer, rather than in the weapon.

Conditions which cannot be changed include:

- Cannot discharge weapon when in Safety Mode
- Cannot discharge weapon when not interfaced (directly or via wireless/quantum communications) with an IES
- Cannot discharge weapon without the will of either the Thought Armor's pilot or their superior officer (the latter if control of the Thought Armor has been overridden)
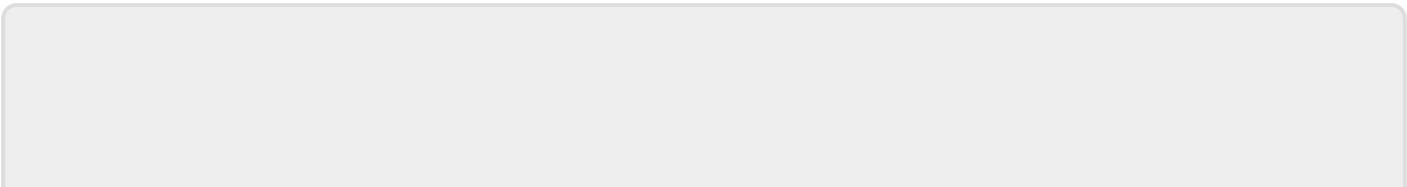
Conditions which can be changed with editing include:

- Cannot discharge weapon when weapon has taken damage
- Cannot discharge weapon in Low Power Mode when weapon is not Low Power Mode Compatible
- Cannot overload weapon for self destruct
- Cannot discharge antimatter weapon when atmosphere is detected
- Cannot discharge weapon without the pulling of the physical trigger if applicable
- Triggerless systems have a split second delay in discharge to emulate trigger to lessen likelihood of friendly fire

Additional Benefits to the Manufacturer

In addition to the benefits in combat, security, and response time; the introduction of the system is also presents additional benefits to the weapon's manufacturer. The firearms used with this system require fewer moving parts such as buttons or knobs for the sight, reducing the complexity of the weapon. Holes for those parts needn't be drilled or cast, making it simpler to produce a space-tight weapon and improving the structural integrity of the device. Costs drop, production speeds increase, and the weapon can be issued to the battlefield faster and more cheaply. While these improvements are more modest in some places than in others, they stack, and are notable when a weapon is mass produced.

Products & Items Database	
Product Categories	computers, electronics, subsystems
Product Name	Weapon Subcomputer
Nomenclature	Ke-M12-E3301
Manufacturer	Star Army of Yamatai, Ketsurui Fleet Yards
Year Released	YE 33

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