

Armor Integrated Electronics System (AIES)

The AIES system, based on the same concept as the [MEGAMI](#) quantum computer, is a network of sensors, communications, and fire control all built around a small centralized computer system. AIES is a subordinate system; it is designed to (but certainly not required to) operate as part of a larger command hierarchy of computers. Above AIES is [CIES](#) (for escort ships - frigates, corvettes, and gunboats), [EIES](#) (for cruisers, destroyers, and escort carriers), [WIES](#) (for battleships, assault ships, and carriers), [MEGAMI](#), and/or [KAMI](#). Using this system, mother ships receive complete data of the battle.

- The heart of the integrated electronics suite is a tiny, but advanced, quantum computer, capable of performing super-high-speed data-churning and possessing untold memory. Quantum computers, unlike old computers which could only process 1 and 0, can process an effectively infinite range of digits, making them awesomely powerful. In addition, the system's sub-particle memory system allows for uncanny storage and access speeds. [Kessaku Anri](#) and her company, [Kessaku Electronics Systems Corporation](#), designed the system.
- The Armor Integrated Electronics System is part of the [PANTHEON](#) (Projected Access Nodal Transuniversal Heuristic Electronic Operations Network) command and control system. The AIES interfaces directly with the pilot's digital mind for seamless data flow and operation of the power armor.

Communications

The AIES comes equipped with a multi-channel wide-band array that gives both security and versatility. Among the types of communication supported are radio, laser, subspace, and hyperspace. Communications can be secured using Quantum Encryption technology, which (due to the Heisenberg Uncertainty Principle) allows the system to detect any monitoring attempts and counter them. Communications Systems of the AIES include:

- **Radio:** Full spectrum, dual-modulation; range theoretically unlimited except by interference. Practical range is short, since the waves only travel at light-speed. Frequency-hop and multi-channel capable. In order to use the secure modes of communication, correct variables must be loaded prior to battle. Such codes are changed on a frequent basis
- **Laser:** For close-range transmissions, it is more difficult for the enemy to intercept, because they have to be in the area of the beam. Also limited to light-speed. Text only. Range: 200,000 miles (321,869 km).
- **Subspace:** Allows faster-than-light transmission. A standard means of communication; it is used for video streams. Inside the power armor's helmet, there's a small camera pointed at the pilot's face for this purpose. Not to be confused with hyperspace communications, which the armor does not have. The armor's CFS bubble is used as the transceiver for these communications
- **Tachyon:** *(Certain power armor models only)* The armor includes a mid-range tachyon communications system for additional FTL capability. Range: 1,000,000 miles (1,609,345 km).
- **External Audio:** The power armor includes an external microphone and a speaker to allow the pilot

to communicate more easily with nearby persons.

- **Homing Device:** Normally inactive, this beacon has an independent backup power supply that can keep it transmitting for up to ten years, even if the main power system is nonfunctional. If main power is available, the beacon will transmit constantly. If not, the beacon will put out a short distress message twice every two hours (five minutes between).

Sensors

- **Wide-Band Variable Optical Imaging Array (head):** The majority of the sensor systems are located in the head, including a high-resolution variable optical system capable of monitoring a very wide spectrum. By default, the system displays visual and infrared data. There is also a night-vision and ultra-violet mode. The power armor has a gyroscopically-stabilized view of up to 300x magnification. There's a spotlight available on the armor's head which can help at night.
- **Optical Tracking System (Skin):** Much like the NH-29S neko, the power armor can see through its Active Camouflage sensors, giving it a view of its entire surroundings at all times.
- **Tachyon Tracking System:** *(Certain power armor models only)* FTL tracking system allows for precise targeting of targets that would normally be impossible to hit due to range and the limitations of standard sensory equipment. Range: 294,000 miles (473,177 km).
- **Time-Modulated Ultra-Wide Band Radar:** Signals transmitted by UWB radars are pulses generated pseudo-randomly in time. They are only 0.5 nanoseconds in duration. The energy content in any conventional frequency band is below the noise, making TM-UWB transmission highly covert. TM-UWB has no carrier frequency or conversion, and because of the low frequency content of TM-UWB signals, they are capable of seeing through foliage and nonmetallic objects better than regular radar can. Ideal for atmospheric operations and nebulae. Range of about 2,000 km.

Condition Reports

Power Armor protection evaluation is on a small 3d display which shows the different sections of the armor in green. When the armor is hit and that its protection is judged to decrease, it goes from green to light green, yellow, orange, light red and finally red. Black indicates that part of the armor is destroyed. Black in the helmet or chest/torso regions is obviously very bad.

Fire Control

The AIES does not use an independent Fire Control System per se, but operates a sub-system of itself dedicated to fire control operations. AIES compensates for all movement of the armor and of target ships, and can track upwards of 25,000 targets ranging from pebble-sized shrapnel to planets. AIES-FCS is a balanced system, and works for the armor's defense, as well as offense. Weapons under AIES's control automatically: target sensitive areas of enemy ships; identify friendly assets; optimize range; guide missiles and torpedoes, assign (and reassign, when necessary) targets in real-time; and control ECM, and ECCM functions. AIES-FCS usually controls all indirect weapons systems. The pilot fires, and AIES takes over tracking the target, creating a "fire and forget" system.

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