# IH-NoN Device

The **IH-NoN[1] Device** is a networked communications device created by the Phoenix Service Group to put themselves ahead of their competition in terms of combat communication and observation. The item was produced with some help from Origin Industries electronics manufacturing branch, with Aerin Tatst providing some electronics engineers to help design the device from PSG's initial sketches.

In addition to being a communications device, the IH-NoN also acts as an external processing unit and communications relay for those who can take advantage of networking with the device via digital link, neural link, or cybernetics. This frees up the user's onboard calculations and lets the device do the heavy lifting and information processing, while supplementing the user or their display with valuable combat data.

In addition, it can also be connected to computer networks to boost its own processing power, making it ideal for command-side computing and rear echelon management, so long as it can connect to units carried on the battlefield.

## Development History

In YE 37. Luca Pavone started to notice a mismatch between all of the personnel who served in the Phoenix Service Group. Their communications devices were a variety of different formats, languages, data types, and pools. This started leading to communications errors and breakdowns on field that Luca had to bail out.

For instance, a group of soldiers may have speak three different languages between them, and use communications devices they're familiar with and link to their cybernetic, neural, or digital interfaces. The problem that arises is they may not share common formats, or have translation errors, or some people with no such interfaces will be left out of the loop entirely by language barriers or a lack of internal interface.

The lack of clear communication and a unified way to spot out targets and paint them on a digital interface was deadly. Luca decided to create a unified device, capable of being used by his troops, to talk to them in their languages, and share a common format, as well as link to devices such as helmet visors, microphones and cameras to let those who don't have cybernetics, a neural interface, or a digital brain still capture, contribute, and receive battlefield data.

However, given the relative inexperience, but enthusiasm of PSG's research and development branch, Luca decided to call a favour with Origin Industries and call upon the expertise of their electronics manufacturing department. PSG's extensive research pool, combined with Origin's libraries isolated the following devices and software as being suitable for 'reference' on this new device.

- Nepleslian Advanced Tactical Electronics - An experimental system that was created during the DREI fallout, but never saw the light of day and was quietly archived.
- AwesomeCorp DataJockey - A solid Nepleslian piece of rugged technology.
- Star Army Communicator, Type 36 - The Yamataian's equivalent.

- MT-G1-1A - Personal Holographic Computer (PHC) - A subcompact device capable of high resolution holograms.

Notably, Luca wanted to refrain from using Lazarus Consortium hardware or software. With a direct order, he wouldn't even allow Laplace to be used for the operating system, forcing the development team to stay on derivatives and offshoots of RICE instead. He also wanted the device to be hardy as possible.

The combined might of the two development teams got to work, creating numerous open-planned electronics solutions, and creating numerous programming solutions to work with the operating systems. In particular, the objective to share information on the go with other devices, or act independently as an external processor proved to be the biggest obstacle. Numerous prototypes were made and put through a battery of trials and tests. Soon, one device rose above them all: The **Information-Haptic NOde Network** Device.

# Images
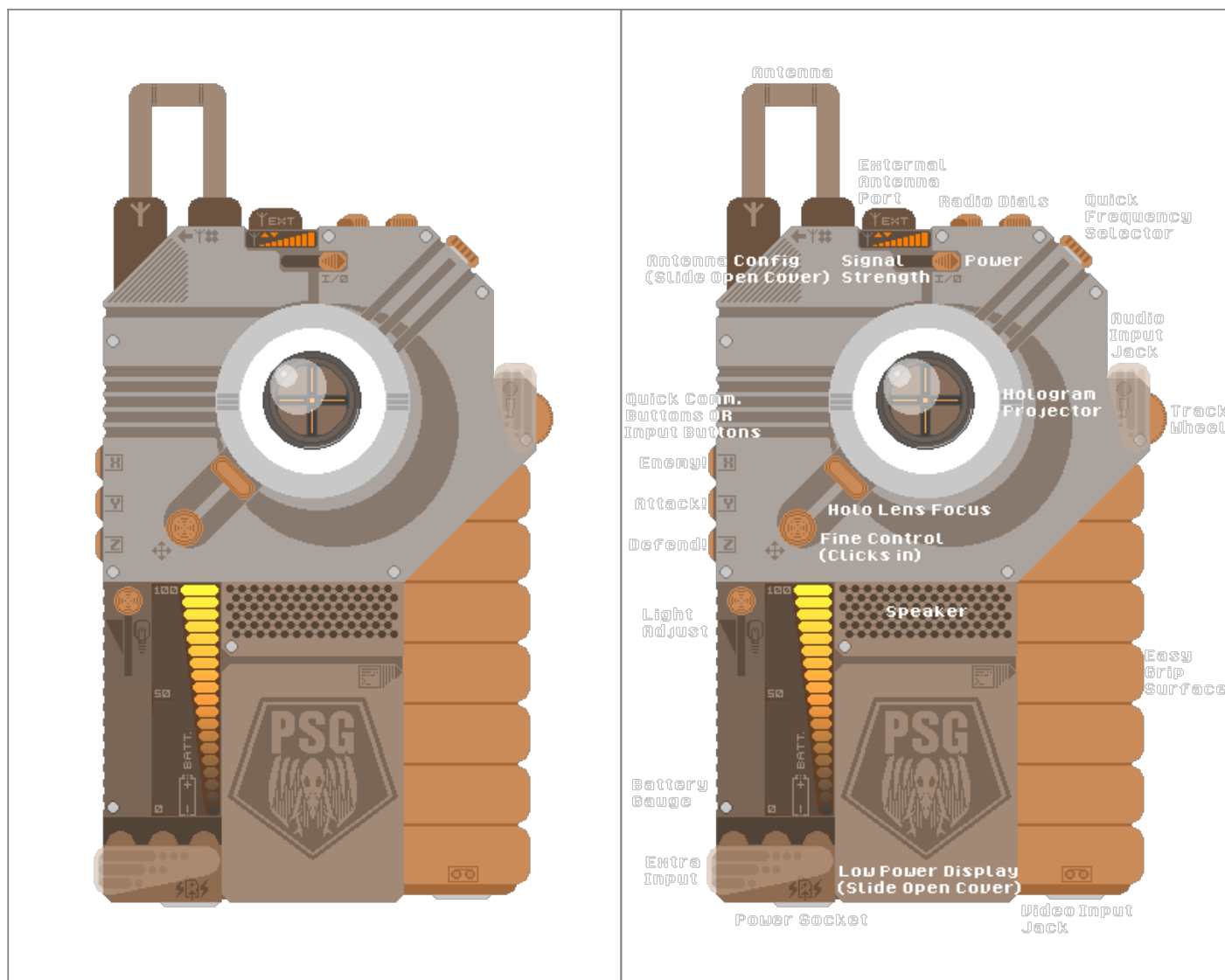
| An IH-NoN Communications Device | Labelled |
| --- | --- |

# Main Software Programs

The software on the IH-NoN is fairly lean stuff, as it needs all the processing power it can get to do its primary tasks.

## DeepFried::Combat::PSG Rice Operating System

Derived from a Nepleslianised fork of the V0.85 version of RICE, Echelon took the opportunity to collaborate with Freespacer enthusiast hackers of the Yamataian operating system. This iteration of the operating system was originally made to make vector and predictive calculations using Freespacer-derived mathematics theories of Probability and Difference.

The result was an operating system optimised to tracking the movement of 'marked' targets using visual, audio, and digital/neural input - as well as scaling with other IH-NoN units with 99% efficiency and sharing information over an encrypted wireless network. With each unit as its own environment, the system can cleanly incorporate and aggregate battlefield input data, ensuring everyone connected knows what's up, and new users in the network can update the situation. It was an intentional ersatz of Origin's experimental Nepleslian Advanced Tactical Electronics system, built upon differing principles and even different hardware.

Further tweaks and iterations integrated a Power-Armour grade approximation of a radar system optimised for close combat, allowing the user to view themselves and their targets within a hundred metres or so, more if other networked IH-NoN units are nearby to scale effectiveness. In addition, the system is capable of drawing up a detailed map of a combat zone based on user observation and movement in three dimensional space. Simply put, its a Power-Armour grade tactical computer in the user's hands.

## Mapping Function and Markers

In addition to DeepFried's IFF capability, a topographical map is integrated into. Compatable with common map file formats across the galaxy, it can create a decent topographical map. Additional markers and intel such as tactics, routes, rear echelon support, or fire support may be layered onto the map depending on the level of detail available and desired.

## Radio System

Working with DeepFried, a simple radio program is present, working on a different bandwidth to the combat data transfer. It allows users to make one to one conversations (IE: Soldier to HQ), one to many conversations (IE: Soldier to Squad/Fireteam), or one to all conversations (SOS signal). Like the combat data, the radio content is encrypted.

# Main Hardware Pieces

The construction of the IH-NoN is made to be a tough wearing piece capable of operating in all sorts of conditions. The case is a mostly Durandium construction, with hard rubber edges where the device could be dropped. This happens to be most of the case's exterior. Buttons, knobs, and dials feel solid and responsive, and in the advent of breakage[2], they are easy to replace.

The internal components are also made, and chosen to be shockproof, waterproof, and impactproof. Tests for the IH-NoN's toughness were quite intense, including locking a unit in a metal box, putting the box in the bottom of the Sargasso Ocean, fishing it out a week later, and after a cursory clean and dry, the unit was still functional.

## Origin Featherlight 720 CPU++

An CPU usually made for Origin Industries consumer electronics, the Featherlight 720 CPU++ was a popular telephone and datapad CPU, capable of operating in harsh conditions, and usually found in ruggedised communications devices. It excels at making quick geographical and probability calculations, and thus serves as the 'Brain' for the IH-NoN.

## Origin Model FL38 Memory Module

Designed for the Featherlight, the memory module for the unit is a combination of fluid and crystallised memory. Data encountered repeatedly within a duration of time is stored within the crystallised memory of the FL38, while less-frequent and quickly-processed data input is held in the fluid memory portion of the module.

Within the module, a crystalline composite based material functions as the non-volatile storage component of the module, able to imprint data delivered via electrical impulse physically upon the crystalline storage media, data which can be purged with another electrical impulse, allowing for the section of media to be reused, this media is not prone to magnetic interference.

The fluid memory consists of a PSG-patented active storage medium, with a process frequency of 1.2Ehz. However, the construction and composition of the active medium leaves the fluid memory components prone to interference. When interference is present, the FL38 defaults to using the crystallised memory media until interference ceases. This feature can also be used in the event of the fluid or crystallised memory being damaged or corrupted, or if there is a need to store/dump data within the non-volatile memory module in the event of primary storage failure.

## Internal Storage Medium

A one exabyte solid-state internal storage offers the benefits or being fairly robust, and very fast

read/write. The amount of writing to the internal storage is limited to ensure the solid-state storage medium lasts for at least five years before needing a reformat.

## TakeAll Communications Board

The TakeAll Communications Board was created by PSG first, being a mish-mash of input processing, including audio, visual, digital, or neural. Spread-apart, loose electronics tests to get the thing working proved interesting, as it had to use galaxy-wide standards physically while being able to accept a raft of different data types. Data drivers and serial busses were mish-mashed together hardware wise, and most of the programming driving the board was written in assembly to make it versatile and light.

This allows the following types of personal interfaces to connect directly to the IH-NoN, and network with other IH-NoN units. The link is encrypted, and it may be wireless, or wired - whichever suits the user or the mission. Three ports are available: One for audio information[3], one for visual information, and a spare port which can be used for additional/future input.

- Minkan Digital Brain
- NH-22C Yamataian Digital Brain
- Nepleslian Neural Cybernetic Systems
- Lorath Neural Cybernetic Systems
- Audio/Visual Input (From a Microphone and Camera)

Any actions to the device listed on this page can be performed with the TakeAll's data connection instead of physically.

## Antenna

The Antenna is a thick cable running between two points outside of the device to form a circuit, made of pure copper tubing with a silver core, protected by hard rubber. Antennae are removable and replacable with a the flick of a catch under the fine tuning panel. It works best within a hundred metres.

### External Antenna

A large port is located next to the antenna which can take another antenna of similar make and increase the effective range of the IH-NoN's communications. It can be sealed with a rubber cap. A stock booster antennae can increase the data effective range by fifty metres, and connection to an externally powered antennae device can boost the ranges even further, ideal for command situations.

### Fine Antenna Control

By pressing against the cover and sliding open, some finer antenna controls may be found to modify bandwidths, frequency mutes, and input types. The slide to release the main antenna can be found here. To remove an antenna, push and slide upwards. To place a new one in, make sure the release is open,

slide the new antenna in, then lock it into place by pulling back until you hear a click.

In addition, two more larger-scale adjustment dials are just beside the external antenna port. These control signal wavelength, letting it create a shorter ranged, but much more intense signal, ideal for fighting indoors or in very hectic situations. Conversely, a long reaching, but low-wavelength configuration can be made for wide ranged, strategic level information gathering.

## Signal Strength Gauge

Measuring how much strength the connection to other IH-NoN devices in the area is a 0 to 9 bar signal gauge. It also shows if data is downloading, or uploading by blinking. Faster blinking means more data volume being transferred.

# Holographic Projector

The centraly 'eye' of the IH-NoN device is the holographic projector. Capable of displaying the equivalent of an upscaled 640 by 480 display, with differing levels of projection depth, the Holographic Projector adjusts itself to the user looking at it to create a clear image. Manual focus controls are just above the projector's fine tuning.

The screen displayed will, so long as the user is looking at it, stay flat and focussed as the user's hand wobbles. Otherwise, it will display straight ahead. It is also possible for this projection to be simulated in the user's mind's eye for stealth purposes, or projected into the visor of a helmet.

The IH-NoN's in-built stereo microphone is located around the lens, to either side of the projector. The speaker system is just below, far enough that the microphone doesn't pick up whatever's being projected, preventing the duplication of output and audio feedback.

## Backup Screen

In the event that using the holographic display to look at information is not ideal due to stealth considerations, power conservation, or lens damage, a backup monochrome screen can be found by sliding a panel away beneath the speaker revealing the screen. This screen mirrors exactly what goes on with the holographic interface, and is backlit with LEDs.

It was frequently in developer mode to log outputs, and kind of stayed on the device after PSG technicians (after some hot debate with Origin's technicians) couldn't find a reason to remove it.

## Light Level

The light level can be adjusted with the push of a knob near the battery up and down, making the

projected hologram and backup screen brighter or dimmer. This helps save power, too.

## Battery and Power Management Chips

The IH-NoN is powered by a chemically inert graphene battery, composed of thousands and thousands of layers of carbon nanorod wafers. It recharges from a galaxy-standard adaptor for consumer electronics directly into an adaptor in a power socket, or connect to a computer/other device, also doubling as a data connection. It recharges within ten minutes.

| Mode | Funcionality Level | Battery Time |
|---|---|---|
| Passive Mode | All basic background functionality, not recommended for combat | 72 hours |
| Mixed Use | Activate when holographic projector is active, and remain on background tasks | 36 hours |
| Active Mode | General operation, fit for combat situations | 24 hours |
| Superhot Mode | Full Processing Power! For hectic situations! | 6 hours |

### Battery Gauge

Huge and obvious, the power bar measures, handily, how much charge is left in the IH-NoN device.

### Buttons

The following buttons are present on the exterior of the device.

- **Track Wheel** - Serves as a multi-purpose selection track wheel for scrolling through things, or adjusting the device's volume when not actively being used. It can also accept neural input by keeping a finger/thumb on it.
- **Quick Frequency Selector** - This four-directional switch on the corner of the device lets users change radio frequencies quickly. Flicking left and right changes the frequencies. Hitting down mutes the channel, and hitting up unmutes it. On map displays, it can change the level of detail and orientation.
- **[X] Button** - A general purpose button. Quick designated to 'Enemy!', and querying information.
- **[Y] Button** - A general purpose button. Quick designated to 'Attack!', and adding data.
- **[Z] Button** - A general purpose button. Quick designated to 'Defend!', and removing data.

# Buying an IH-NoN

PSG Soldiers are issued an IH-NoN device for 200KS. They are usually utilised best by people managing logistics on field, being able to keep an eye on their soldiers and spot enemies lets them find the best routes for transportation.

An IH-NoN device may be ordered over the InterNEP for 2700KS, including shipping, handling, and background checks. They can be ordered in different external colours and designs. A helpful video is

included on how to operate the device.

# OOC Notes

[Luca](#) created this article on 2016/02/05 17:38.

**Basic Goal:** Make Power Armour Grade computer system for unpowered soldiers, usable for a wide variety of people, able to connect to any body suite or communications system, and can act standalone or pool resources with other units. In practice, marking system from a video game.

**What's actually happening:** In which Luca's general ignorance of how technology works allows him to create a goddamn combat supercomputer for personnel and their management.

# Reference

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[1)](#)
Information-Haptic NOde Network
[2)](#)
Somehow.
[3)](#)
a built in microphone can be used in a pinch

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