Sensors

Sensors are the technological eyes and ears (and other senses) of starships (and of star system installations). Technology magnifies the capabilities of personal senses and translates the information that sensors gather into understandable formats.

Sensors are examples of technology; their use is an example of personal task resolution. Together, they give information to characters about their environments.

THE PURPOSE OF THE TRAVELLER SENSOR SYSTEM

The **Traveller** sensor system and its mix of devices allows the crew of a starship (or spacecraft, or vehicle, or installation) to acquire knowledge about objects and phenomena around them in a series of information-gathering steps. Rather than knowing everything about a star system or plant or region all at once, the information becomes available in a series of readings.

The Referee Has Perfect Knowledge

He knows if an enemy starship is lurking in the planetoid belt, or behind a gas giant. Or, he knows that the present star system is totally vacant, with no threats or dangers other than natural ones.

The Players Have No Knowledge.

They depend on the readings from their sensors to develop an understanding of the situation. Dare they risk moving directly to the barren mainworld, not knowing what ships might lie in ambush? Dare they move closer, risking being detected by possible enemies as they do?

The Process

The Sensor Process becomes part of the excitement as players investigate each new star system, planet, and even planetary location, moving ever closer as their use their sensors, and risking disaster if they guess wrong.

Used Only When Necessary. The Sensor Process is a sequence of steps dealing with the unknown. If the system is totally unknown to the characters, then using the Sensor Process is entirely appropriate. If the system is familiar, then Sensors come into play only when problems or unusual readings occur.

UNDERSTANDING SENSORS

Sensors are technological devices which provide information about the environment. Sensors are identified by a LongName (with enough detail to define its usage) which includes Stage, Range, Sensor Name, and Tech Level.

Each specific type of Sensor is also identified by a single Letter Code (for example, C = Communicator).

Types of Sensors. Sensors are available in a variety of generalized types. **Space Sensors** are used over the vast distances of space. **World Sensors** are used over smaller distances associated with a world. They are also more closely tailored to the information that examination of a world can provide.

USING SENSORS

Sensors reveal the details of the universe to the players. Their output is in three distinct stages:

Alert. When there is something of possible interest, the Referee conveys to the players an Alert:

"Your [sensor] sees something about here [location].

Detection. Using the Sensor Task, the characters try to resolve what gave the alert (or they can ignore it). Success in the Sensor Task provides information about the alert.

Tracking. Once a sensor detects an object, it can track that object until some event causes the signal to be lost (it moves out of range; it is hidden by a world; it deliberately jams or hides its signal).

THE SENSOR TASK

		TL	Char	Skill	Mod
nD	**<**	**T**	**+C**	**+S**	**+M**
n = Range			Use: C4 C5	Use: Sensor	
Uncertain (1D)					

A Sensor cannot operate beyond its stated Range.

The Sensor Task determines the success of the effort.

Because the possible readings are unknown, the Referee administers the task in increments based on the dice used:

The Uncertain Die. The referee rolls the Uncertain Die secretly and notes its result. Players can assume the result is 3 (although it may be between 1 and 6). If this assumed 3 is less than T+C+S+M, he reveals anything detected at S=1 (for Space Sensors) or R=1 for (World Sensors).

The Second Die. The referee rolls the second Die and if the total is less than T+C+S+M, he reveals anything detected at S=1 (for Space Sensors) or R=1 for (World Sensors).

Additional Dice. This process allows checking at each available range without revealing to the players which ranges are important.

DESCRIBING SENSORS

Sensors are identified by a LongName which provides enough detail to define its usage. A Sensor LongName includes Stage, Range, Sensor Name, and Tech Level.

Stage - Range - Type - Tech Level (C+S)

Elements of the LongName may be omitted if not applicable.

Stage is the sensor's position in the spectrum of sophistication in the developmental life cycle. It is possible for Stage to be blank. For example, Prototype, Basic, or Advanced.

Range is the sensor's distance factor in acquiring information. Space Sensors use Space Ranges. World Sensors use World Ranges. Range in either case uses a term which translates to a range band.

Sensor Name details the precise nature of the mechanism and provides insights into how it operates.

Tech Level identifies the Technological Level at which the Sensor is commonly manufactured. TL is required.

CREATING SENSORS

The abilities and effectiveness of Sensors is determined primarily by Type and Tech Level.

The Sensors available to a ship are determined by the Tech Level of the constructing shipyard (although character may upgrade their ship's sensors as better ones become available).

Similarly, the Sensors available to worlds or bases is determined by its governing tech level.

Space Sensors detect a variety of inputs and process them to provide specific details of location, environment, and friends and enemies.

The Sensor Creation Process

Sensors are selected from the Sensor List and then created in two parts: the Sensor (as modified by Range) and the Bridge Console (as modified by Stage).

1. Base Sensor. Select a Base Sensor Type from the World Sensor List or the Space Sensor List. Note its Model Letter and Tech Level.

The base tonnage for a Sensor is zero tons. The base cost for World Sensor is Cr100,000. The base cost for a Space Sensor is MCr1.

2. Mount. Select a Mount for the Sensor from the Sensor Mounts Table. Note any Mods to the Sensor based on Mount.

3. Range. The Standard Range for Space Sensors is S=7. The Standard Range for World Sensors is R=7. Increase or decrease the base Range using the Range Effects Table and note its consequences (applied to the Mount) for Tech Level, Tonnage, and Cost.

4. Bridge Console. Each Sensor requires a 1-ton Bridge Console. If the Bridge has insufficient consoles, increase Bridge size. The Console holds the Local Computer for the Sensor and its various operator displays.

5. Stage. The base Stage for Sensors is Standard (which need not be stated). Increase or decrease the base Stage using the Stage Effects Table and note its consequences for the Bridge Console Tech Level, Tonnage, and Cost.

Added tons may be located anywhere on the ship (not necessarily on the Bridge).

Note any Mods to the Sensor based on Stage.

SENSOR CREATION EXAMPLE

For example, several Neutrino Detectors are possible.

N-10 Neutrino Detector-10

The standard device at standard tech level; mounted in a hull Surface Mount.

S=7 (per Space Sensors).

Cost= Standard= MCr1 (per Space Sensors).

Console = 1 ton on the Bridge.

Mount = Surface Mount requires no additional tonnage.

The N-10 can detect anything equal to or larger than the benchmark shown on the Sensor Data Chart, but not farther than Maximum Range S=7.

Assuming the Sensor Operator has C4=7 and Sensor-3 and no Mods, the Sensor Task calls for him to roll 7D for (14 + 7 + 3 = 24) or less = about a 50% chance of detecting the target.

ExSRN-6 Experimental SR Bay Neutrino Detector-6

TL= 10 -3 -1 = 6.

S=5.

Cost= MCr1 x10 /2 plus Mount MCr5 = MCr10.

Mount= 50-ton Bay plus 3 tons adjacent to the Bay.

Console = 1-ton Console on the Bridge.

The ExSRN-10 can (attempt to) detect Fusion+ modules at S=5 = 50,000 km or closer. It has a Mod +5 to detect.

Assuming the Sensor Operator has C4=7 and Sensor-3 and Mod + 5, the Sensor Task calls for him to roll 5D for (10 + 7 + 3 +5 = 25) or less = about a 98% chance of detecting the target.

ACTIVE VERSUS PASSIVE

Most sensors are passive. They receive information in some way, but do not emit any information themselves. Passive sensors are difficult to detect.

Some sensors are active. They emit some form of information (they send out a radio pulse, or a laser spot in the course of operation). Active sensors give away their location and the fact that they are operating.

A sensor which can be Active or Passive is automatically Passive unless the operator makes the switch to Active (and receives a Mod +3) but also automatically alerts any operating sensors).

Active Mode can only be used to about S=7.

USING THE SENSOR CHARTS

The Sensor Charts show the various sensors and their capabilities at a wide selection of ranges.

Minimum Size Benchmarks. A sensor can attempt to detect the benchmark shown at the stated range or closer. An object smaller than the benchmark cannot be detected (or attempted to be detected). Mods change the chance of detection, but do not alter the size restrictions.

Maximum Range. Each Sensor has a stated Maximum Range. It cannot attempt detection of objects beyond Maximum Range.

Jammers

A Jammer produces a Mod against detection by Radar, EMS, or Scanner.

Stealth Mask

A Stealth Mask produces a Mod against detection by Active Radar, EMS, or Scanner.