



# GOLDENEAGLE HD

## GOLDENEAGLE HD Smart Modulation Monitor – Market Monitor

The GOLDENEAGLE HD is a HD receiver designed as a smart modulation monitor with optional spectrum analyzer/digital demodulator and transmitter remote control capabilities.

The GOLDENEAGLE HD can be installed at the studio, at the transmitter site or in any reception area. The standard version includes an embedded web server and a software interface for remote control via TCP/IP.

The GOLDENEAGLE HD monitors automatically, in real time, the quality and continuity of several FM and/or AM analog and HD programs and notifies the relevant personnel of any problem by sending an alarm.

The GOLDENEAGLE HD offers innovative functions such as a spectrum analyzer; audio streaming and recording, automatic market monitoring, measurement analysis and storage as well as transmitter optional remote control.

### 3 versions are available

- GOLDENEAGLE HD FM: includes 1 HD and 1 FM/RDS analog receiver.
- GOLDENEAGLE HD AM: includes 1 HD receiver
- GOLDENEAGLE HD FM/AM: includes 1 HD, 1 FM/RDS analog receiver.



### Single station monitoring

The GOLDENEAGLE HD continuously and simultaneously monitors analog and HD signals measuring all parameters from a single station.

### Multi station monitoring

The GOLDENEAGLE HD can also be configured to monitor multiple (up to 10) radio stations. The receivers will automatically scan the assigned stations and monitor the analog and HD signals and parameters.

### Modulation monitoring

The standard unit features FM analog modulation sampling. This relative monitoring allows the detection of out of tolerance conditions and triggers an alarm. As an option, a digital demodulator is available for fast, accurate modulation measurements with a bargraph display (on the touchscreen or on the software application). Bargraphs are available for: total modulation, pilot, RDS SCA, L, R, L+R, L-R analog and digital audio (HD1 and HD2).

### Automatic notification of out of tolerance conditions

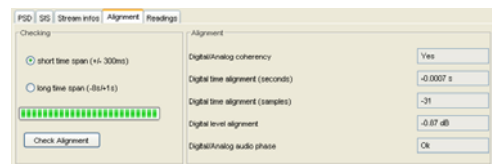
The GOLDENEAGLE HD is constantly monitoring the important HD and analog parameters. The unit actually scans through the configured stations, makes the measurements and compares the readings with pre-configured nominal levels. If one of the readings is out of tolerance, an incident is generated. If, after a configurable time delay, the incident is still present, an alarm is triggered. The alarm can be sent via email, SNMP or voice message (optional), and can even trigger a relay (optional).

### HD2, HD3,...

The GOLDENEAGLE HD can detect the presence of multicasting. Therefore, it can also monitor HD2 and HD3.

### Readings and logging

Real time readings and data can be viewed on the front panel or on any computer using the JAVA application (included). Averaged readings for the last 60 minutes or the last 24 hours can also be displayed using the JAVA application (text and graphic representations) or on the touchpad display. An event log saves any configuration changes, incidents and alarms.



TIME ALIGNMENT READINGS – Check the precision of your digital to analog audio time and level alignment. (accurate to 1 sample)

### Streaming for remote audio listening

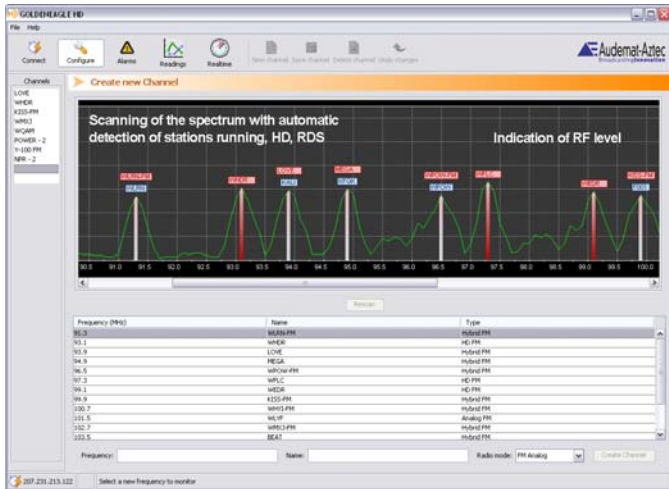
Connected to a LAN/WAN or a PSTN line, you can access the unit from anywhere in the world and listen to any HD program by streaming the audio. The user can select to hear the HD (including HD2, HD3, etc.) or the analog audio. You can also stream HD audio on the right channel and analog audio on the left in order to check the time and level synchronization. Stream low quality at 64kbps stereo or high quality at 128kbps.

Automatic audio recording can be easily configured based on date and time or alarm activation. MP3 files are stored in the on-board hard drive and can be downloaded via FTP. Audio listening is also possible using the headphone output and the audio outputs. Selection of the program can be done with the touchscreen

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## Market monitoring

The GOLDENEAGLE HD can be configured to perform a scan of the FM band. The scan can be launched manually or automatically, triggered by a time interval or at a specific date and time. The GOLDENEAGLE HD will measure their RF level, detect stations operating HD, HD2, RDS and will decode PI and PS (RDS) as well as the station short name (HD). The current scan is superimposed on a previous reference scan in order to detect any changes (new HD station on the air, increase of RF power) and automatically generate an alarm. This feature enables you to keep an eye on your market and competition.

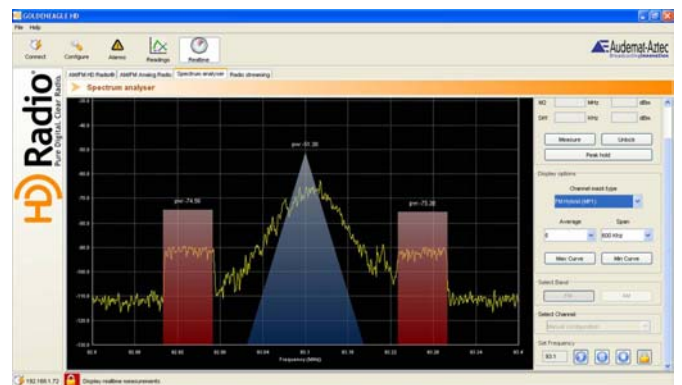


## Audio outputs

Analog L and R and AES outputs on the rear panel, and a headphone jack on the front panel are available to listen to the audio. You can configure HD and analog audio in different channels to check synchronization.

## FFT spectrum analyzer (option)

Audemat-Aztec offers as a factory option an embedded Spectrum analyzer. This option enables the user to visualize the real time spectrum of the RF signal. It enables the GOLDENEAGLE HD to measure the power of the analog carrier, and digital sidebands as well as the ratio between the two. A reference mask can be displayed in order to compare on-air performance to theoretical ideal. Thresholds can be set (spectrum mask) so that while performing automatic monitoring, the GOLDENEAGLE HD can detect out of tolerance conditions and generate an alarm.



## Digital Demodulator (Comes with the spectrum analyzer option)

The Digital demodulator offers MODULATION MONITORING with REAL TIME DISPLAY MODE:

- Bargraph representation: Total modulation, Pilot, RDS, 67 and 92kHz injection, Analog and HD audio levels
- Possibility of monitoring audio levels of HD2, HD3
- Real time value with maximum and minimum peak hold lines
- Display also available on front panel touchscreen

## Broadcast Manager and centralized Management (option)

Broadcast Manager is an optional web server and database designed to centralize information and alarms from all Audemat-Aztec monitoring units. It is the perfect solution for management of multiple GOLDENEAGLE HD units. Broadcast Manager Functions:

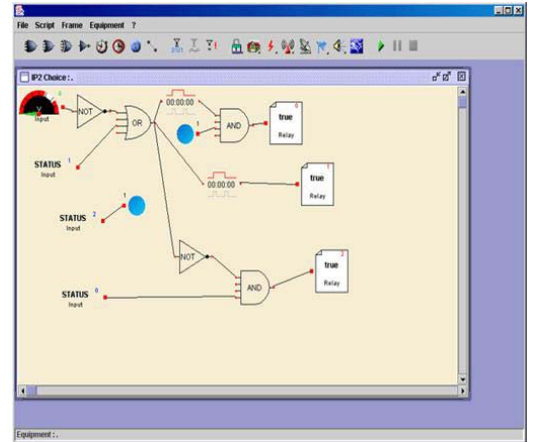
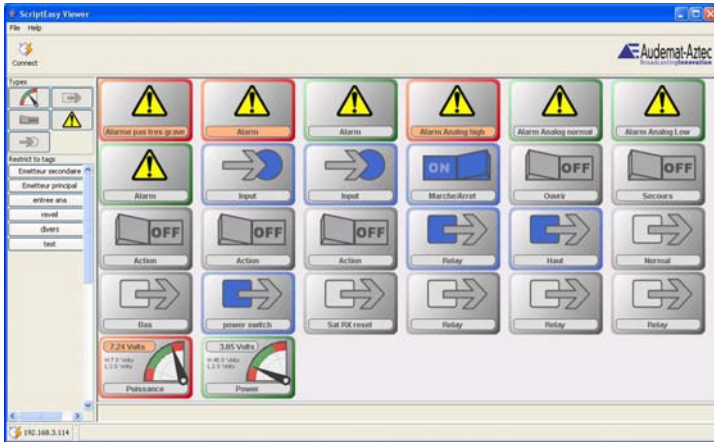
- Alarm centralization
- Alarm dispatch (SMS, fax, email)
- 3D scanning displays
- Interface with site location
- Site configuration (list of equipment on site)
- GOLDENEAGLE configuration
- Data analysis
- Status of all sites
- Database for each site



## Transmitter Remote control for "total control" solution (option)

When installing the GOLDENEAGLE HD at a remote site, you have the option to add input/output capability. Then you can turn your GOLDENEAGLE HD into a powerful remote control as well.

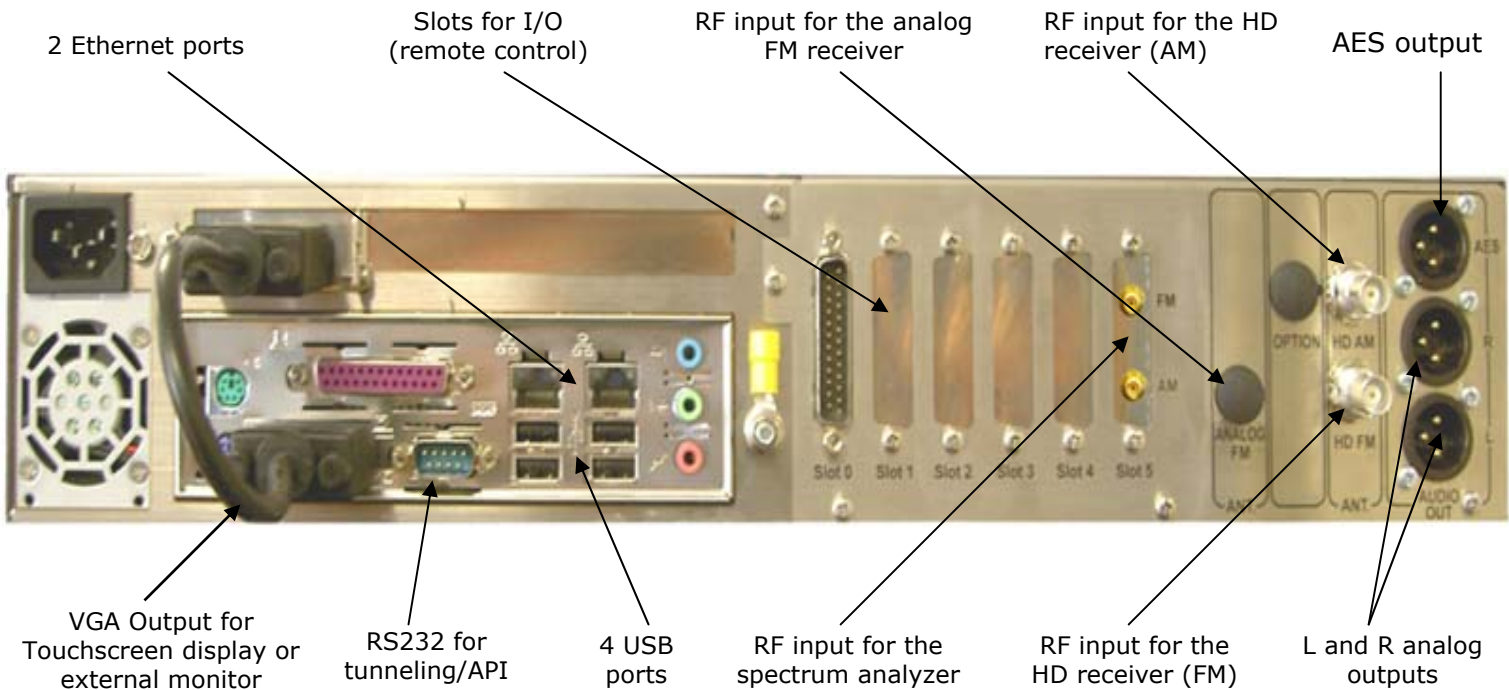
The standard option provides 16 digital inputs (status), 16 analog inputs and 16 relay outputs (commands). It also includes the SCRIPTEASY software. This GUI (Java Applet) enables you to configure scripts for automatic actions. Alarms can be sent via email using the embedded SMTP server or using the voice interface or via SNMP. Relay outputs can be controlled using DTMF commands. Scripts can be configured to respond to RF conditions and/or the status of the I/O.



Up to 3 RS232 ports (1 standard and 2 optional) can be used for TCP/IP tunnelling applications. This innovative feature enables you to access the serial port of remote equipment using the TELNET protocol. The GOLDENEAGLE HD acts as a RS232/TCP-IP gateway.

The A.P.I. (Application Program Interface) is a powerful new tool for advanced programmers to link an Audemat-Aztec GOLDENEAGLE HD with external equipment, via one of the available serial ports. Users can send custom commands through the serial connection, read responses, and configure actions based on the results. Users can even employ the XMLRPC protocol to integrate the information into web pages of their own design. The A.P.I. allows flexible and useful communication between the two units, incorporation of data and control functions directly into SCRIPTEASY, and full integration of the external equipment into the overall control plan!

## Rear panel



# TECHNICAL SPECIFICATIONS

## Monitored parameters (alarm on out of tolerance conditions)

### AM and FM parameters

RF level (low 1, low 2, high threshold)  
 Total modulation level  
 Audio levels (L, R – low and high threshold)  
 Pilot injection level (low and high threshold)  
 RDS injection level (low and high threshold)  
 RDS parameters: PI code, scrolling PS monitoring  
 RDS Bit Error Rate  
 Presence of any RDS groups, AID status change

### HD parameters monitored

QI, SNR, DAAI  
 Time and audio level alignment between audio and digital paths  
 Phase between analog and digital paths  
 RF mask monitoring (with spectrum analyzer option)  
 Audio levels (silence sensor)  
 Primary service mode change  
 Codec mode change  
 Blend status change  
 Audio program availability status change

## Measured and decoded parameters (measurement in real time – no alarm)

SIS, PSD, stream info, DAS, DAAS  
 SIS frame acquisition time  
 Audio acquisition time  
 RF spectrum, power of digital side bands, ratio between analog and digital carriers (with spectrum analyzer option)

## Communication protocols

HTTP (CGI scripts), FTP, SNMP,  
 SMTP, Telnet, PPP (for TCP/IP communication via modem)

## Options

Touchscreen display  
 Spectrum analyzer/Digital demodulator (factory option)  
 I/O boards for remote control – 16 x 16 x16 (factory option)  
 8 relays board (factory option)  
 DTMF/Voice Interface (software / hardware option)  
 Upgrade from FM to AM/FM version (software option)  
 Webcam (software/hardware option)  
 Broadcast MANAGER (software option for centralized management of several GE HD)

## Hardware description

2U – 19”  
 FM and AM/FM version: 1 HD receiver and 1 FM receiver  
 AM version: 1 HD receiver  
 Linux OS  
 RDS decoder (only for FM and AM/FM version)

## Communication ports

1 10/100 Base T Ethernet port  
 1 RS232  
 2 XLR audio outputs (L/R) and AES Output  
 1 audio output for headphone  
 4 USB ports

## Digital demodulator performances

RF level: <1% between 50 and 80 dBuV  
 Total modulation: <1% between 0% and 125%  
 Pilot/RDS/67 and 92: <+-1%

## Spectrum analyser option

		Characteristics for FM:	Characteristics for AM:
<b>Frequency band</b>		87.5 - 108 MHz	531-1710 kHz
<b>Sensitivity</b>		-100dBm	-100dBm
<b>Dynamic range</b>		70dBm	60dBm
<b>Linearity in the band</b>		+/-0.5dB	+/-0.5dB
<b>Precision</b>		+/-0.5dB	+/-0.5dB
<b>Span</b>		600kHz/1000kHz	60kHz
<b>The FFT is calculated with the following parameters</b>	<b>Type of FFT</b>	Blackman-Harris	Blackman-Harris
	<b>Number of points</b>	1024	2048
	<b>Average</b>	5/10/20/50/100/200	5/10/20/50/100/200