



Acadia

RDS/RBDS System



Reach your audience in a different way!



With the evolution of radio broadcasting always in thought, Biquad presents its version of the RDB / RBDS (Radio Data System) encoder to the world market. The equipment, named Acadia, has been developed with the most advanced technology currently available, and has resources and exclusive features not found in any other existing model on the market.

In addition to all functions that exist in other equipment on the market, Acadia features a GPIO interface that can be used as remote control and supervision (simple) from a transmission shelter (for example). In addition to the GPIO, Acadia features a specific screen send messages called Quick Messages in its control Web interface. This interface enables greater interaction between the operator / announcer and listeners, allowing for better use of technology and smarter use of the equipment.

In addition to these new features, it is also possible to transmit other information about the station in plain text with Acadia such as song name, interpret, radio name, advertising, type of programming, information about the economy, time, date time, etc.

Connected to the web, the machine's internal clock can be precisely synchronized with an NTP server ensuring constant precision, with automatic switching option for daylight saving time, without any human intervention. With the SCHEDULER function, it can schedule different messages throughout the day with times and predefined durations.

Biquad cared to match the equipment with all existing automation software on the market. The forms of communication are available for UDP Ethernet, RS-232 or USB. Biquad also developed the Acadia Connector - a plug-in that captures automation system information and sends it to the equipment, in order to

reach automation software that is not prepared to support the UDP protocol.

The Acadia encoder operates both under the American standard - RBDS - and the European standard - RDS - in compliance with the NSRC and EUROPEAN CENELEC standards. The equipment also supports UECF, RT + and Song Tagging.

Its control interface is based on a web page with password access levels that ensure convenience and safety when inputting product settings. Its Web interface is not only visually pleasing, but designed to be intuitive and practical at the time of configuration, aside from being compatible with all browsers currently on the market.



Adjust the main parameters straight from your internet browser, an intuitive and easily operated interface.



The front panel has a Jog Wheel and an OLED display, interacting with the user and allowing for the overall configuration of the device via this interface.

The Jog Wheel serve as the control while the OLED display shows all configurable parameters of the equipment and information such as the date, time, PS and RT, exactly as they are being shown in the listener's receiver.

Over time, evolutions of the product, with the implementation of new features can be downloaded directly from the Biquad website and quickly and easily installed without the need to change the equipment or modifications in your hardware. To do this, simply access the product support page and download the latest firmware version available, following the guidelines to update the equipment. Everything is as easy and intuitive as possible.

The Acadia is designed with several advantages compared to other encoders available, making it the most complete equipment today. Want to be complete and different? Use Acadia in your station and open new doors of interaction with your listeners! In addition to speaking, now you also can write...



Front USB interface

What is RDS?

RDS stands for "Radio Data System": a digital transmission system for information in text format that uses a portion of the conventional FM channel. You can stream content such as station name, program, name of the current song and even advertisements directly into the listener's receiver.

What can I Transmit?

It is important to remember that not all radio receivers implement all of the groups that RDS is capable of transmitting. The most common functions are shown next.

A number of other parameters can be configured on the machine and are detailed in the product user's manual.

PS

Programme Service

The PS information identifies the station with an alphanumeric code of 8 characters. Information with more than 8 characters can be displayed in groups of 8 or "rolled" on the receiver's screen according to the configuration set in the machine. A fixed text can be set in the PS field, such as the name or slogan of the radio station or dynamic information stemmed from the automation of various settings available in Acadia. It is this information that the simplest receivers usually display.

PTY

Programme Type

To make it easier for the listener, the encoder signals the type of program being broadcast. You can label the station's programming as "News", "Rock" or "Alternative", among others, for example. Some radio receivers have search functions for stations using the type of programming, and take this information into account when choosing the station to be received.



Ethernet Interface



Bivolt Automatic Power Supply

Rear USB interface

RS-232 Interface



OLED high-contrast display

Jog Wheel to set parameters using the panel

What is RBDS?

In the United States, the RDS standard was slightly modified and goes by the name RBDS - "Radio Broadcast Data System". The differences are minimal, the main one being the change in some fields of the PTY - Program Type.

RT
Radio Text

This field can also be used to send various information exactly like the PS field. Not all radio receivers show this field, only the more sophisticated ones. Usually, the receivers that have the RT field show messages up to 64 characters or "roll" larger messages automatically.

Each radio receiver model has its own RT field characteristics, which may be greater or smaller than 64 characters and roll these messages (or not) in different ways and speeds.

AF
Alternative Frequency

The radio receiver, upon receiving this information, can choose which frequency to tune into, based on the signal quality. If, for example, along a path, the same broadcaster has multiple transmitters at different frequencies, the user does not need to change stations. This will be done automatically by the radio whose order is sent by the encoder through this parameter.

PI
Programme Identification

This is a unique code, which identifies the transmitting station and cannot be the same as that of another station in the same coverage area. In the US, the FCC provides the PI code for broadcasters and each one has its own code. Each country has its own rules for setting the PI code. Check with the regulating body of your country for more information regarding the correct setting of your PI.

TA/TP
Traffic Announcement / Traffic Program

The Encoder has the ability to warn the receiver that the program being broadcast has priority over the normal schedule. This way, the receiver can, for example, turn off the CD music and increase the volume of the station, so that the listener receives the newsletter.

CT
Clock Time

The RDS can send the local weather information, hitting the clock radio receiver. The Acadia clock can be synchronized automatically over the Internet (optional).



GPIOD for remote control and supervision

RDS signal output only

MPX signal input or sync

- It can be fully configured via the front panel through a Jog Wheel and OLED display;
- CPU with high-tech DSP to provide a high quality signal and spectral purity, with extreme speed processing.
- Compatible with any existing automation software on the market;
- Compatible with any driver or stereo generator available in the market. It has an internal oscillator with an accuracy of +/- 2 Hz, and input for external synchronization;
- Internal web server for device configuration, does not need any app installation for control;
- Access the machine settings with different password levels, enabling high security operation;

- Schedule for sending messages on predetermined dates and times;
- Quick Messages - Exclusive configuration page dedicated to sending quick messages to listeners. Allows greater interaction between the station's operator / broadcaster and listeners;
- Supports RT + and song tagging;
- Internal clock with automatic update option through the Internet;
- Ethernet, USB and RS-232 ports for PC communication;
- Configuration via ASCII, UECP and network protocols;
- GPIO: 1 input and 4 outputs - remote control and monitoring equipment;
- Automatic high efficiency Bivolt Source;
- Modern and functional design;

1. RDS SIGNAL

Meets CENELEC EN50067 specifications, NSRC standard and UECP V6.01 protocol

1.1 - Modulation

- Differential and biphasic, AM Modulation with double sideband and carrier suppression (DSB-SC)

1.2 - Central Frequency

- 57KHz +/- 6Hz

1.3 - Bandwidth

- +/- 2.4KHz

1.4 - Maximum RDS level in output ONLY RDS

- 0 to 15.3Vpp (+17dBu)

1.5 - Maximum RDS level in output MPX + RDS

- 0 to 0.75Vpp (-3.3dBu) - proportion of 5% of the output RDS ONLY

1.6 - Linear Distortion

- <0.5dB between the upper sideband and lower sideband

1.7 - Carrier Ratio

- >80dB

1.8 - Carrier Suppression

- >85dB

2. SYNC

2.1 - External

- Synchronization with external pilot tone - 19KHz +/- 2Hz

2.2 - Internal

- Automatic switching to internal local oscillator in the absence of external synchronization - 19KHz +/-2Hz

3. INPUTS

3.1 - SYNC OR MPX

- Connector: unbalanced BNC
- Impedance: >10K Ω
- maximum MPX input level for RDS injection ratio of 5%: 15.3Vpp (+17dBu)
- Nominal input level: 3.5Vpp

4. OUTPUTS

4.1 - MPX + RDS

- Connector: unbalanced BNC
- Impedance: <50 Ω
- MPX signal mirror of electronically coupled AC input
- Frequency response: 0.1Hz to 100KHz @ 0.1dB
- Phase Shift: < 1 $^\circ$ @ 0.1Hz to 100KHz
- RDS level plus the MPX signal: adjusted electronically, proportion of 5% from the nominal level at the output ONLY RDS OUT

4.2 - ONLY RDS

- Connector: unbalanced BNC
- Impedance: <50 Ω
- RDS level: electronically adjusted 0 to 15.3Vpp (+17dBu)

5. INTERFACE

5.1 - GPIO

- Connector: DB 15 Male
- 1 TTL input optocoupled
- 4 TTL outputs optocoupled

5.2 - RS-232

- Connector: DB 9 Male
- Transmission rate: 1200 to 115200 asynchronous baud.
- Format: UECP (Universal Encoder Communication Protocol - EBU SPB 490)

5.3 - TCP/IP

- Connector: RJ-45 Standard
- Type: full duplex 10/100 Base-T
- Format: TCP / UDP / SNMP / IGMP (multicast)

5.4 - USB

- Connector: USB type B on the front and rear panels

6. RDS SERVICES

- PS, PI, TP, TA, PTY, PTYN, MS, DI, RT, CT, AF, EON, EWS, ODA, TMC, IH, RP, PIN, SLC, LINKAGE, EPP, ECC, FFG, SPS

7. FRONT PANEL

7.1 - Display

- Type: OLED technology
- Resolution: 100 x 16 pixels

7.2 - Jog Wheel

- Type: Rotary
- Functions: scroll right and left through the navigation menus and "Enter" function, when pressed.

8. GENERAL INFORMATION

8.1 - Power Supply

- Full range automatic: 90 to 240Vac
- Operating Frequency: 47 through 63Hz
- Maximum consumption: 12VA / 127V - 22VA / 220V

8.2 - Operating temperature

- -30 a + 70 $^\circ$ C

8.3 - Dimensions:

- 19" (width) x 1UR (Height) x 9.05" (total depth - with connectors)
- 484mm (width) x 44.5mm (height) x 230mm (full depth - with connectors)

8.4 - Weight:

- 2.150Kg unpackaged
- 3.150Kg with packing



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