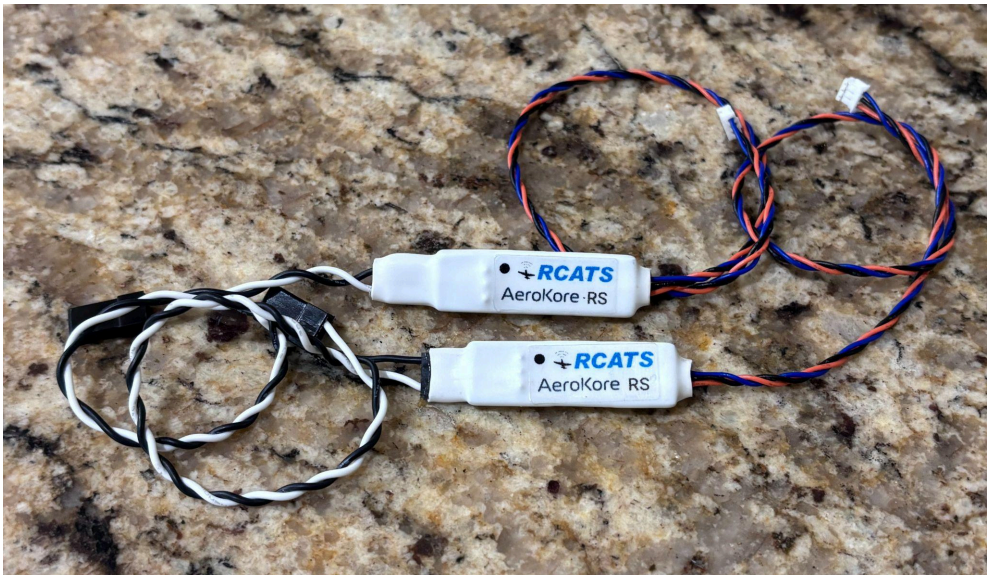
RCATS

AK-RS | RPM Sensor
User Guide



Intro

Thank you for choosing the AeroKore RPM Telemetry Module. This device is engineered to bridge the gap between high-voltage ignition systems your telemetry enabled recievers. This module features enhanced signal filtering to ensure that your RPM data is both accurate and stable, even in the high-interference environment of a gasoline engine. It is compatible with Spektrum systems, and can be used with other protocols in combination with our AeroKore TS-Temperature module.

Please refer to our website for the most up-to-date specs: www.rcatsystems.com

In this Guide:

Compatibility

Spektrum Receivers:
This module is compatible with "Full Range Telemetry" receivers that feature a dedicated 3-pin RPM sensor input. Please visit our site at www.rcatsystems.com/support for a list of all receivers we have tested with.

Other Protocols & Receivers:
This module is also compatible with other protocols when used in combination with the AeroKore TS-Temperature module.

Ignition Modules:

This module has been tested with the following engine / ignition manufacturers:

- EME
- RCEXL
- DLE
- GP Engines
- SAITO

NOTE: There may be variance between ignitions provided by an engine manufacturer. If you have questions about a specific ignition module, please

Installation

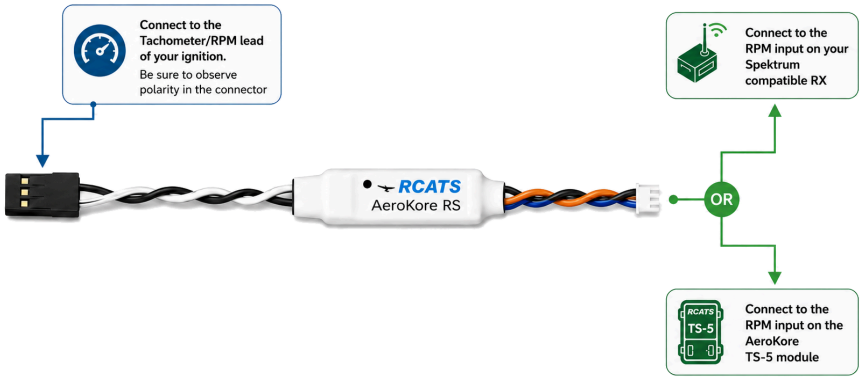
Installation is straightforward: the module sits between your ignition's tachometer output and your Spektrum telemetry-equipped receiver or AeroKore TS-5 module. Whether you are performing critical break-in runs on a new Saito or fine-tuning your DLE, this module provides the real-time feedback necessary to ensure peak performance and long-term engine reliability.

Hardware Connection & Installation

The AeroKore RPM Module is designed to interface directly with any Spektrum receiver equipped with a standard 3-pin RPM telemetry port, or other protocols when used in combination with our TS-Temperature module.

Plug and Play:

- Simply connect the module to the receiver's dedicated RPM port using a standard 3 pin JST-ZH 1.5 telemetry lead. (This lead is provided and attached under the shrink wrap)
- Connect the other end to the Ignition module RPM out servo lead (observing polarity!)
- The sticker on the AeroKore-RS module will have a black dot designating the GROUND side. This must go to the ground side on your ignition module. Note in the photo below, the “Black” wire is on the ground side. In the event the wire colors are not white/black, the ground will always be the darker color.



Filtering: Featuring advanced opto-isolated circuitry, the module creates a physical barrier between your engine's ignition and your radio gear. By smoothing out the "noisy" signals common in gasoline ignition systems, it delivers a steady, reliable readout, allowing you to monitor engine health and optimize prop selection with confidence.

Crucial Installation & Wiring Note

To ensure the highest signal integrity and protect your telemetry link from ignition noise, please follow these specific wiring guidelines:

- **The "Ignition Side" (High Noise):** The connection between your ignition/tachometer output and the AeroKore module must utilize a **two-wire, twisted-pair lead**. It is critical to keep this side of the circuit **as short as possible**. For best results, mount the module in close proximity to your ignition unit.
- **The "Receiver Side" (Clean Signal):** Once the signal is processed and filtered by the module, the output to your Spektrum receiver is "clean." If your installation requires a longer cable run to reach the fuselage or radio tray, **always extend the cable on this side** rather than the ignition side.
- **Cable Length:** The ignition lead provided with your kit is cut to length for most applications. While it can be modified if absolutely necessary, we strongly recommend mounting the unit as close to the ignition module as the airframe allows and only adding “length” on the “clean” side between the unit and RX.

Safety First: Pre-Flight Range Testing

Whenever you install new electronic components or modify the wiring layout within your aircraft, it is essential to perform a comprehensive range check before your first flight. Even though our modules are designed with internal filtering, every airframe is unique, and verifying the integrity of your control link is a critical safety step.

Perform a Ground Range Test: Follow the specific "Range Test Mode" procedure as outlined in your Transmitter Manual.

Verify Under Power: For RPM sensors and ignition-related hardware, we recommend performing a range test both with the engine off and with the engine running to ensure the ignition system does not introduce interference at higher RPMs.

Follow Manufacturer Guidelines: Always adhere to the minimum distance and signal strength requirements specified by Spektrum for a successful range check.

Do not attempt flight if the range test does not meet the manufacturer’s specified criteria.

Where to Find Your RPM Data

Once connected and bound, your engine’s RPM data will be visible in the following locations:

- Spektrum iX Series (iX12, iX14, iX20): Access the Telemetry Dashboard by swiping left or right from the main model screen. You can also add an "RPM" widget to your main dashboard for a real-time dial or digital readout that’s visible at a glance during flight.
- Spektrum DX & NX Series: From the main high-level screen, simply scroll the roller to the right. The transmitter will cycle through your active telemetry screens; the RPM screen will display your current engine speed along with "Max RPM" recorded during the session.
- For other protocols, please refer to the AeroKore TS-Temperature module documentation for instructions on how to view RPM data.

Safety, Installation Warnings, & Limitation of Liability

Any addition to your radio system—including telemetry modules, electronic valves, or extended wire leads—can introduce new variables to your RF environment.

To ensure the highest level of safety and performance, please observe the following guidelines. **Note that the user assumes full and sole responsibility for the safe operation of their aircraft and all actions taken during use.**

Installation Guidelines

- **RF Interference & Long Leads:** The addition of long servo extensions or telemetry leads can occasionally act as antennas, potentially picking up or radiating interference. Always route your wiring away from your receiver antennas and ignition systems to minimize signal noise.
- **System Integrity & Power:** Ensure your power system (battery and BEC) is capable of handling the additional load of any connected telemetry modules and the simultaneous operation of your retract servos.
- **Mandatory Range Testing:** You should always perform a comprehensive ground range test after installing any new hardware or changing your aircraft's wiring configuration. Verify that the system operates correctly with the engine/motor both off and running.

Assumption of Risk & Liability

Failure to verify the integrity of your radio link and power system after installation could result in a loss of control or unexpected failsafe activation. By using the AeroKore PS, you agree to the following:

1. **User Responsibility:** The operator is exclusively responsible for the airworthiness of the aircraft and the safety of the flight environment.
2. **Limit of Liability:** In no event shall **RCAT Systems** be liable for any direct, indirect, or consequential damages arising from the use of this product. **RCAT Systems** is not responsible for any crashes, collisions, or damages to the aircraft, surrounding property, or persons, regardless of the cause. This includes, but is not limited to, operator error, hardware failure, or environmental interference.

Always prioritize a "safety-first" approach by confirming system behavior on the ground before flight. Use of this product constitutes acceptance of these terms.

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