Runleader RL-HM011F

Runleader Digital Tachometer & Hour Meter (Model: RL-HM011F)

Brand: Runleader
Model: RL-HM011F

Introduction

The Runleader RL-HM011F is a self-powered digital maintenance reminder tachometer designed for small engines. It accurately tracks engine hours, monitors RPM, and provides service reminders, ensuring optimal engine performance and longevity. Its replaceable battery and waterproof design make it a reliable tool for various applications.



Figure 1: Runleader RL-HM011F Digital Tachometer and Hour Meter

Important Safety Information

WARNING: This product contains a button cell or coin battery. Ingestion of a button cell or coin battery can cause severe internal chemical burns in as little as 2 hours and may lead to death. Keep new and used batteries OUT OF REACH OF CHILDREN. If a battery is swallowed or inserted inside any part of the body, seek immediate medical attention.



Figure 2: Button Battery Warning Label

Product Features

- **Hour Meter:** Displays total run time of the engine with 0.1 hours accuracy. The display remains visible when the engine is off. Total hours can be reset.
- **Maintenance Reminder:** Features a programmable service timer (SERVICE). A countdown tracks the service reminder time, and a warning icon flashes when maintenance is due.
- **Tachometer:** Accurately records engine RPM when running. Can be programmed for different engine firing patterns to assist in adjusting engine idle.
- **Battery Replaceable:** Equipped with an internal replaceable CR 2450 battery. All data is retained after battery replacement. The unit can be shut down, retaining data.
- **Waterproof Design:** Rated IP65 for water resistance.

Setup and Installation

1. Unboxing and Components

Upon opening the package, verify that all components are present:

- Runleader RL-HM011F unit
- User manual

- Cable ties (x2)
- 3M double-sided tape
- CR2450 battery (pre-installed with insulating sheet)



Figure 3: Included Accessories

2. Battery Activation and Replacement

The unit comes with a CR2450 battery pre-installed, but an insulating sheet must be removed for activation. To do this:

1. Locate the battery cover on the back of the unit.
2. Use a coin or appropriate tool to unscrew and remove the battery cover.
3. Carefully pull out the insulating sheet.
4. Replace the battery cover and secure it.

When replacing the battery, ensure the new CR2450 battery is inserted with the correct polarity. All data will be retained.



Figure 4: Battery Compartment and CR2450 Battery

Your browser does not support the video tag.

Video 1: Unboxing and Battery Activation. This video demonstrates how to unbox the product, remove the battery insulating sheet, and activate the device.

3. Mounting the Unit

The unit can be mounted using the provided 3M double-sided tape or by screwing it into a suitable surface using the pre-drilled holes. Ensure the mounting surface is clean and flat for optimal adhesion.

4. Connecting the Signal Wire

The tachometer and hour meter function by detecting the electrical impulses from the spark plug. To connect the signal wire:

1. Locate the spark plug cable on your engine.
2. Wrap the signal wire from the Runleader unit around the spark plug cable for 5-8 turns. Ensure the wraps are tight and bunched together in one layer for accurate readings.
3. Secure the signal wire using the provided cable ties to prevent it from coming loose or interfering with moving parts.



Figure 5: Signal Wire Connection Diagram

5. Programming Engine Firing Patterns

For accurate RPM readings, the unit must be programmed to match your engine's firing pattern. Refer to the table below to identify the correct pattern for your engine type. Use the 'M' (Mode) and 'S' (Set) buttons to navigate and select the appropriate setting.

Table 1: Engine Firing Patterns

Engine Firing Patterns	Engine Type	Spark Plug Firing and Engine Rotate Taps	RPM Capacity
1P1R	4 stroke 2 cylinder	1 spark per revolution	25000
1P1R	2 stroke 1 cylinder	1 spark per revolution	25000
1P2R	4 stroke 1 cylinder	1 spark per 2 revolutions	12500
2P1R	4 stroke 4 cylinder	2 spark per revolution	8000

Engine Firing Patterns	Engine Type	Spark Plug Firing and Engine Rotate Taps	RPM Capacity
2P1R	2 stroke 2 cylinder	2 spark per revolution	8000
3P1R	4 stroke 6 cylinder	3 spark per revolution	6000
3P1R	2 stroke 3 cylinder	3 spark per revolution	6000
4P1R	4 stroke 8 cylinder	4 spark per revolution	4500
4P1R	2 stroke 4 cylinder	4 spark per revolution	4500
HOUR	RPM shutdown	Working as an hour meter only	N/A

Operating Instructions

1. Power On/Off

The unit automatically powers on when it detects engine activity (spark). It can also be manually shut down by pressing and holding the 'S' button. Data is retained after shutdown.

2. Display Modes

The Runleader unit has multiple display modes, which can be cycled through using the 'M' (Mode) button:

- **Total Hours (TOT HOURS):** When the engine is off, the display shows the total accumulated run time of the engine. This value can be reset if needed.



Figure 6: Total Hours Display

- **Real-time RPM:** When the engine is running, the display shows the current engine revolutions per minute (RPM).



Figure 7: Real-time RPM Display

- **Service Reminder (SERVICE):** This mode allows you to set a programmable maintenance interval. The unit will count down the time until service is due, and a service warning icon will flash when the maintenance time is reached.



Figure 8: Maintenance Reminder Display

Maintenance

Regular maintenance of your engine is crucial for its longevity. The Runleader unit assists by providing timely reminders.

- **Setting Service Intervals:** Use the 'M' and 'S' buttons to set your desired service intervals (e.g., for oil changes, air filter replacement).
- **Battery Replacement:** Replace the CR2450 battery when the display becomes dim or unresponsive. Follow the steps outlined in the "Battery Activation and Replacement" section.
- **Cleaning:** Keep the unit's display and casing clean using a soft, damp cloth. Avoid abrasive cleaners or solvents.

Troubleshooting

If the unit is not functioning as expected, consider the following:

- **No Display/Dim Display:** Check the CR2450 battery. Ensure the insulating sheet has been removed or replace the battery if it's low.
- **Inaccurate RPM/Hour Readings:** Verify that the signal wire is securely and tightly wrapped around the spark plug cable (5-8 turns). Ensure the correct engine firing pattern is selected in the unit's settings.

- **Unit Not Turning On with Engine:** Confirm the signal wire connection. The unit activates based on spark detection.

For further assistance, please refer to the detailed user manual or contact Runleader customer support.

Applications

The Runleader RL-HM011F is versatile and suitable for a wide range of small engine applications, including but not limited to:

- ZTR Lawn Mowers
- Tractors
- Generators
- Marine Outboard Engines
- ATVs
- Chainsaws
- Motorcycles
- Snow Blowers
- Jetskis
- Paramotors



Figure 9: Common Product Applications

Specifications

Table 2: Product Specifications

Feature	Detail
Brand	Runleader
Model Number	RL-HM011F

Feature	Detail
Material	Acrylonitrile Butadiene Styrene (ABS)
Item Dimensions (L x W x H)	2.89 x 1.85 x 0.79 inches
Item Weight	2.82 ounces (80 Grams)
Screen Size	47 Millimeters
Battery Type	CR 2450 Lithium Metal (included)
Waterproof Rating	IP65
Country of Origin	China

Warranty and Support

The Runleader RL-HM011F comes with a **2-year warranty**. For technical support, troubleshooting, or warranty claims, please refer to the contact information provided in your product packaging or visit the official Runleader website.

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