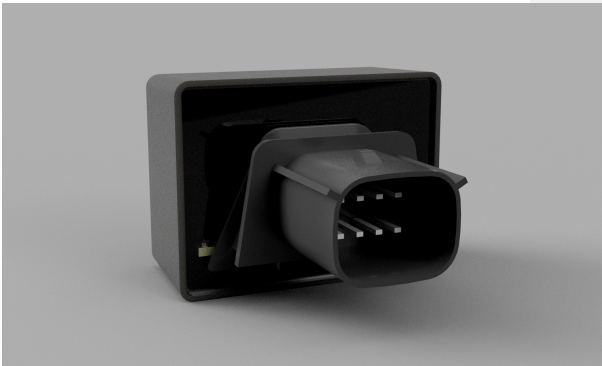




Reverse Module RM-80

Installation Guide & User Manual



⚠ Important: Please read this entire installation guide thoroughly before starting the installation process. Failure to follow these instructions and safety precautions could result in damage to your vehicle, void your warranty, and cause personal injury. If you are unsure about any part of the installation, seek professional assistance.

⚠ Important Notice: Receipt and Acknowledgment of Installation and Use Agreement Required before proceeding. Installation or use of this product signifies your acknowledgment and acceptance of all terms and conditions outlined in the agreement below.

Serial Number: _____

Purchase Date: _____

Install Date: _____

1. Installation and Use Agreement

STOP—MUST READ BEFORE INSTALLATION OR USE

- **Installer, Distributor, and Dealer Responsibility:** Installers, distributors, and dealers must ensure that the end user receives a copy of this agreement and understands its terms before completing the sale or installation. It is their responsibility to convey the important safety information and usage guidelines contained herein to the end user.
- **Professional Installation:** While the controller is designed for user installation, you agree that professional installation is highly recommended to ensure optimal performance and safety. If you choose to install the product yourself, you do so at your own risk and assume responsibility for any issues that arise from improper installation or use. Improper installation by a non-professional may lead to system malfunction, personal injury, or death.
- **Vehicle and Electrical System Modifications:** By installing or using this controller, you agree that you are modifying your vehicle's drivetrain and electrical systems. You acknowledge that such modifications may have unforeseen consequences. It is your responsibility to ensure all connections are properly secured and that the product is compatible with your vehicle's systems. You are responsible for ensuring these modifications are performed correctly and that your vehicle is thoroughly tested to confirm proper functionality and safety after installation or use.
- **Warranty Impact:** You understand and agree that installing or using this controller may void your vehicle's manufacturer warranty or other product warranties. It is your responsibility to check with your vehicle or other product manufacturer before proceeding with the installation or use of this product. Any warranty provided by Design Fab Works, LLC, if applicable, is limited to the terms outlined in the product's warranty documentation, and unauthorized installation or repairs will void any such warranty.
- **Compliance with Laws and Regulations:** You agree to ensure that the installation and use of this product comply with all applicable local, state, and federal laws, regulations, and safety standards. You, the end user, are solely responsible for understanding and confirming legal compliance before and after installation or use of this product, including compliance with road safety regulations.
- **Liability Waiver:** You agree that Design Fab Works, LLC is not responsible or liable for any damage, malfunction, personal injury, or death resulting from the installation, use, or malfunction of this product. All risks associated with the installation or use of the controller, including any malfunction of the product causing personal injury or death, are assumed by you, the user. This product is intended for off-road use only, and its use on public roads may increase risk.
- **Limitation of Liability:** Design Fab Works, LLC will not be liable for any indirect, incidental, or consequential damages that result from the installation, use, or malfunction of this product, including but not limited to personal injury or death, damage to your vehicle, or property damage, even if Design Fab Works, LLC has been advised of the possibility of such damages.
- **Off-Road Use Only:** You acknowledge that this product is designed for off-road use only. Off-road driving poses inherent risks, including increased chances of vehicle rollovers or other accidents. You agree to operate the vehicle carefully and within its limitations. Additional maintenance and inspections may be necessary due to the harsh conditions of off-road use. Use of this product on public roads is prohibited and increases the risk of vehicle malfunction or accidents.
- **Maintenance and Inspection:** You agree to regularly inspect the controller installation to ensure all connections and components remain secure and functional. Any required maintenance or repairs should be performed by a qualified professional. Continued use of a malfunctioning system may result in further damage, personal injury, or death.

- **Technical Support and Assistance:** If you encounter issues with installation, use, or system performance, you agree to contact Design Fab Works' technical support team for assistance before attempting any repairs or modifications. Unauthorized repairs include, but are not limited to, modifications to the control module, unauthorized software updates, or the use of non-compatible components. Any unauthorized repairs or modifications void any remaining product warranties or support agreements.

2. 1-Year Limited Warranty

Design Fab Works, LLC provides a limited warranty to the original purchaser of the controller. This warranty ensures that the product is free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of purchase. This controller, provided by Design Fab Works, LLC, is designed for off-road use only and must be installed and operated under the guidelines outlined below.

- **Covered Components:** This warranty covers all parts of the controller against defects in material or workmanship during the warranty period.
- **Exclusions:** The warranty does not cover labor costs or repairs to any other components of the vehicle or related systems; damage caused by improper installation, misuse, or unauthorized modifications; damage resulting from accidents, neglect, abuse, or operating the controller outside the recommended use; normal wear and tear; any product that has been modified, repaired, or tampered with by an unauthorized individual or service center; or use of the product for purposes other than off-road driving.
- **Proof of Purchase:** To claim warranty service, proof of the original purchase (e.g., receipt or invoice) must be provided.
- **Repair or Replacement:** During the warranty period, Design Fab Works, LLC, at its discretion, will either repair or replace any defective parts or components with new or reconditioned parts of equal or greater quality. All repairs must be performed by Design Fab Works, LLC or an authorized service center. Labor costs associated with installation, removal, or any related repairs to the vehicle or other components are not covered under this warranty.
- **Shipping Costs:** The customer is responsible for any shipping and handling charges associated with returning the product to Design Fab Works, LLC. If the product is found to be defective and covered under warranty, Design Fab Works, LLC will cover the return shipping costs for the repaired or replacement unit.
- **Warranty Claim Process:** Contact Design Fab Works, LLC at info@DesignFab.Works to obtain a Return Merchandise Authorization (RMA) number. Safely package the product and include the RMA number, proof of purchase, and a detailed description of the issue. Ship the product to the address provided by Design Fab Works, LLC.
- **Limitation of Liability:** This warranty is non-transferable and applies only to the original purchaser. Design Fab Works, LLC's liability under this warranty is limited to the repair or replacement of defective parts, as outlined above. Design Fab Works, LLC is not responsible for any incidental, indirect, or consequential damages that result from the installation, use, or malfunction of this product, including, but not limited to, damage to other components of the vehicle, personal injury, death, or property damage, even if Design Fab Works, LLC has been advised of the possibility of such damages. If the product fails and causes damage to other parts of the vehicle or related systems, Design Fab Works, LLC is not liable for the cost of repairs or any resulting damages.
- **Disclaimer:** This limited warranty is provided in place of all other warranties, express or implied, including but not limited to implied warranties of merchantability or fitness for a particular purpose. Some states or jurisdictions do not allow limitations on implied warranties, so these limitations may not apply to you. Using this product on public roads may void this warranty.

3. Verify Compatibility & Parts

Purpose: Designed for custom vehicle powertrain swaps (e.g., Ford Coyote/Godzilla). Reads digital gear data via high-speed CAN Bus to command reverse light output.

Requirement: Operates via CAN Bus network. Designed for most 2011+ Ford powertrain swaps using an automatic transmission. The transmission must be controlled by the ECM or OEM TCM.

Integration: Matches most control packs *PATS Module Connector* and requires adding just a single wire into the open cavity #1 of your existing connector. **"Use Pigtail adapter harness P/N (RM-PT) if PATS Module Connector is absent"**. In either method the reverse lights or other accessories can connect directly to the module up to 8 amps.

4. Installation Steps

If utilizing the PATS Module Connector: Connector Pinning & Verification

- Locate your control pack harness plug "PATS Module"
- Important Pin Verification:** Use a multimeter to verify this exact harness layout before locking anything in:
 - Pin 1 (LT Green):** Must be empty to accept your new wire.
 - Pin 2:** **MUST remain empty.** Do not populate.
 - Pin 3 (White/Blue):** High-Speed CAN High network line.
 - Pin 4 (White):** High-Speed CAN Low network line.
 - Pin 5 (Black):** Clean chassis Ground pin.
 - Pin 6 (Yellow):** Switched 12V Ignition Power ("ON" key position).
 - Pins 7 & 8:** Pin 8 carries constant battery positive. These pins are unused by the module logic; if wires exist here, **they may remain connected.**
- Pry open the connector retainer using a small flat-head screwdriver (See **Figure 1**). Do not remove the retainer all the way.
- Insert a paperclip into the face of the connector to release the internal lock (See **Figure 2**), then grasp the blank cavity plug with needle-nose pliers and remove it (See **Figure 3**)
- Insert the provided **Light Green wire pin** into slot 1 (See **Figure 4**) until you hear it click and lock securely. (*note the small dimple facing up*).
- Snap the retainer back into its fully locked position.
- Fully seat **PATS Module Connector** into the RM-80 module

- Run the opposite end of the newly pinned **Light Green wire** directly to your vehicle's reverse lights.

If utilizing the optional pigtail adapter harness (RM-PT):

- Connect the wires as follows
 - Light Green (Pin 1):** Connect to your Reverse Light Output circuit.
 - Blue (Pin 3):** Connect to **HS CAN Bus High**.
 - White (Pin 4):** Connect to **HS CAN Bus Low**.
 - Black (Pin 5):** Attach directly to chassis Ground.
 - Yellow (Pin 6):** Connect to a switched 12V ignition power circuit (protected by a **10A Fuse**).
- Fully seat New Connector into the RM-80 module

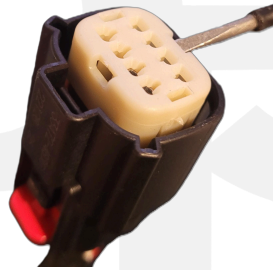


Figure 1

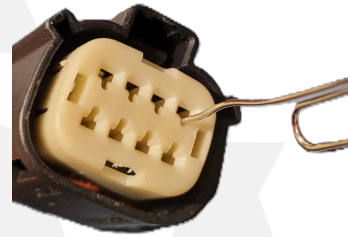


Figure 2



Figure 3

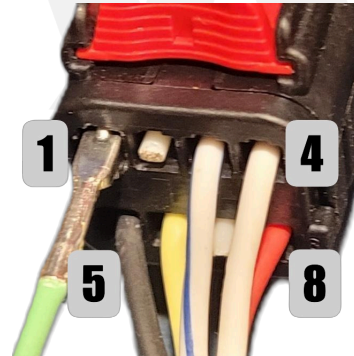


Figure 4

5. Testing & Use of System

- Stationary Test:** Turn the key to "ON" (engine off). Verify the **Green LED** is solid and the **Blue LED** is strobing. Press the brake, shift into **Reverse (R)**, and confirm the **Red LED** and physical reverse lights turn on. Shift back to Park, Neutral, Drive, etc. and ensure they turn off instantly.
- Live Test:** Start the engine in a clear area and verify normal reverse light operation before driving the vehicle. Drive the vehicle and ensure the reverse lights do not come on at any time.
- Short Circuit Reset:** If the **Blue LED** flashes a repetitive **Double-Blink**, immediately shift out of reverse and inspect the Light Green output wire for a short-to-ground.

6. Indicators & Troubleshooting

Three integrated LEDs provide real-time diagnostics:

- Green:** Solid when receiving stable ignition power.
- Red:** Active when output on **Pin 1** is energized.
- Blue:** Indicates CAN status and Faults.

Blue LED Code	System Condition / Fix
Rapid Strobe	Normal Operation. Valid gear data identified.
Slow Blip	Network active but missing ID. Check ECM/Transmission.
Double-Blink	Latched Output Short. Fix short, cycle out of reverse gear to reset.
Off	No CAN comms. Check Pins 3 & 4 wiring or offline ECM.

Dead Lights? Verify ground on Pin 5 and ignition power on Pin 6. If using the PATS Module Connector, the fuse will be located in the Control Pack fuse box.

Support: Info@DesignFab.Works

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