

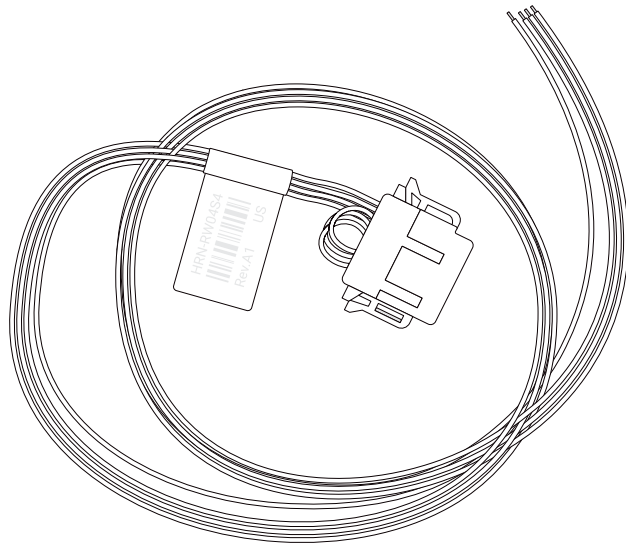
# HRN-RW04S4 (Differential Harness) Installation Guide

## Introduction

This harness is designed for assets that have a reference voltage other than an ignition signal relative to battery ground. The signal voltage between D+ and D- determines the ignition state. When the voltage of D+ is more than 1.5 Volts than D- the ignition state will turn on.

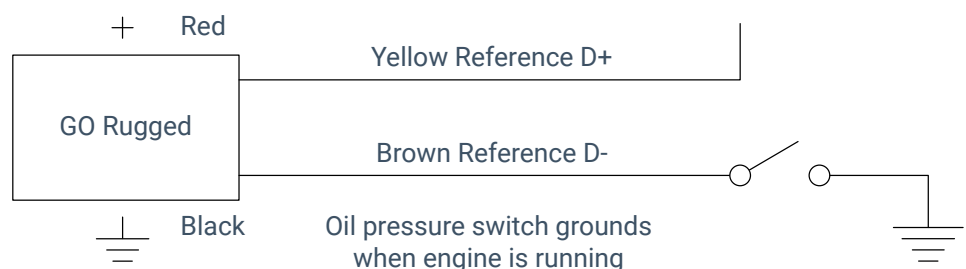
Use Cases:

- RPM detection using sensor
- Negative Battery disconnect



Pin number	Pin color	Pin definition
1	Black	Ground
4	Brown	Reference (D-)
9	Yellow	Differential (D+)
12	Red	Battery

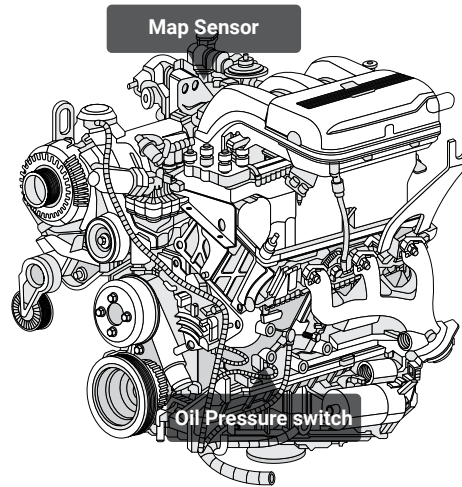
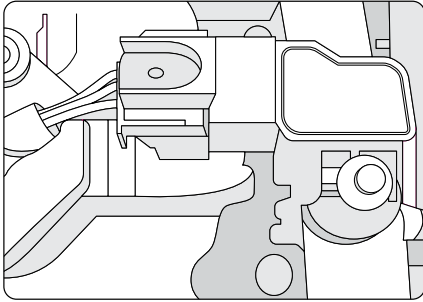
### RPM Detection using a sensor:



## Example

**Step 1:** Find the best location for your source connection. If possible, keep the sources close to minimize wiring length in the engine compartment.

MAP Sensor Pin # 3 Reference Voltage Yellow wire  
Oil Pressure Switch Single wire Deferential wire Brown wire.



**Step 2:** Locate the differential source for the brown wire. In this example, the signal wire at the oil pressure switch provides a ground when ignition is on (Reference D-). This is what we use to detect ignition on.

**Step 3:** Locate the reference voltage for the yellow wire. In this example, it is found on pin 3 of the manifold absolute pressure (MAP) sensor (Reference D+).

**! IMPORTANT:** When ignition is on, the reference voltage (approximately 5 V) is the same as the oil pressure switch. When the engine starts, the oil pressure switch will ground. This voltage differential triggers an "ignition on" signal to the device.

**Step 4:** Locate the constant power supply. If possible, this should be located close to the other two connections in the engine compartment to minimize wiring length. In addition, locate a ground point, which should be on the negative battery or body ground.

## Negative Battery Disconnect:

