



The Digi Sync

Digital Vacuum Gauge
For Carburetors and Throttle Bodies

TheDigiSync.com



OWNER'S MANUAL:

2-CHANNEL, 4-CHANNEL, AND 6-CHANNEL

Overview:

The Digi Sync provides up to 6 simultaneous readings so you can balance the carburetors or throttle bodies on fuel injection vehicles. The Digi Sync manometer analyzes the peak-to-peak values of the vacuum pulsations and does not use inline restrictors that dampen the vacuum pulsations. Therefore, The Digi Sync has a significantly higher accuracy with less noise than any traditional fluid manometer or mechanical vacuum gauges.

Carb/Throttle-Body balancing will improve the response, smoothness, mileage, performance and running temperature of your engine. Digital synchronization is better because it is more accurate and does not pose the risk of sucking manometer fluids into your engine.

Contents:

- The Digi Sync digital peaking manometer
- 5/32" vacuum hoses with 1/4-turn quick disconnect connectors

Extras:

- Storage Tub
- Magnetic cling option (magnet installed inside the case)
- Replacement vacuum caps with retaining clips
- 5mm or 6mm stainless steel adapters

Operating Instructions:

- 1) Locate intake vacuum ports on your vehicle and remove the vacuum caps, or hoses, as necessary. Attach the supplied vacuum hoses to the ports.
Note: If only screws exist on the vacuum ports then either metric 5mm or 6mm vacuum port adapters must be temporarily installed during synchronization.
- 2) Place The Digi Sync anywhere convenient that is within reach of the hoses.
Note: Engines and exhaust may get hot enough to melt The Digi Sync and hoses.
- 3) Connect the supplied vacuum hoses to The Digi Sync using the attached 1/4-turn connectors.
 - a. Only tighten them finger tight. **Do NOT use tools or overtighten!**
 - b. Do **NOT** plug unused vacuum hoses.
 - c. Keep the Digi Sync above the carburetors to not allow fuel to run into the vacuum line gauge ports.
- 4) Connect the other end of the vacuum hoses to your vehicle's vacuum ports.
Note: If your fuel petcock is vacuum operated then draw a vacuum on the petcock line and then use vice-grips to pinch-off to ensure fuel flow.
- 5) Turn on The Digi Sync and wait for it to finish self-calibration.
Note: The LCD screen displays all readings in the same order as the vacuum hoses.
- 6) If your bike is air-cooled, position a fan so it blows cool air over the cylinder head and/or radiator.
- 7) Warm the engine until it will idle reliably without choke (if present).
Note: The engine should not be at full operating temperature at this point as it may lead to overheating later.
- 8) Refer to your vehicle's maintenance manual and set the idle as specified.
- 9) Adjust each carb/throttle-body:
 - a. All carburetors should be adjusted to match the reference carburetor. This is the carburetor that is fixed and is not adjustable.
 - b. Each adjustment should be approximately 1/8th turn of a screw.
 - c. It is best to blip the throttle after each adjustment to allow the vehicle to relax into its new setting.
 - d. It is normal for it to take several iterations to sync all carbs because each adjustment affects the others.
 - e. Engine idle speed should be monitored and adjusted when necessary to maintain specified RPM.
 - f. **The best engine performance is achieved when the Digi Sync readings are within 1-2 digits from one another. However, if that is too difficult to accomplish, please note that acceptable performance is achieved even when the readings are within 5-10 digits.**
- 10) When complete:
 - a. Set the idle speed according to the service manual.
 - b. Remove the supplied vacuum hoses from the vehicle's vacuum ports.
 - c. Replace all vacuum plugs that were removed for this maintenance. If 5mm or 6mm adapters were used, then replace them with the original screws to seal the ports.

Cautions, Warnings, and Disclaimer:

- Engine and exhausts can become dangerously hot!
- Be careful with any spilled fuel. It is dangerous both as a fire risk and fume inhalation.
- Work in a well ventilated area.
- The Digi Sync team is not liable for your misuse of the product.
- Inspect all hoses to ensure they are not touching anything that will melt them and that they are not flattened or kinked.
- The Digi Sync is NOT waterproof. Do NOT submerge in any liquids or spray with chemicals.
- By using The Digi Sync, the user assumes ALL risks. The Digi Sync team is NOT responsible for any damages or losses inflicted upon yourself, others, or equipment while using this product. If you are unfamiliar with vehicle maintenance, seek guidance from professional or hire a professional.

Questions & Answers:

- Any or all of the channels may be used at one time.
- The Digi Sync can be operated in any orientation: vertical, upside-down, etc...
- Automatic calibration is performed every time The Digi Sync is turned on.
- Hose extensions may be added if necessary but are not recommended.
- The Digi Sync is capable of accurately measuring pressures and vacuums between:
 - 1 to -12.0 psi
 - 1.036 to -24.432 Inch of Mercury (inHg)
 - 68.948 to -827.371 mBar
- Each digit of The Digi Sync is calibrated to:
 - 0.0555 psi
 - 0.1129 Inch of Mercury (inHg)
 - 3.8245 mBar

These values represent the accuracy/precision/resolution of The Digi Sync
However, when synchronizing carbs and throttle bodies, it is easiest to only focus on comparisons between neighboring values.

- Note that The Digi Sync has an offset of 25 - *Expected reading at atmospheric pressure (engine off)*
- The RPM feature is only accurate on warm engines that have one piston per carburetor or throttle body.

Troubleshooting Tips:

We assume that anybody using The Digi Sync will have basic knowledge regarding the mechanics of their vehicle, particularly, but not limited to, safely removing the fuel tank. If you feel unable to safely do this, or any of the other tasks, hire an expert.

It's always a good idea to sync after adjusting your valves. Ideally, you should balance carbs/throttle-bodies after you have serviced the rest of your bike.

Air leaks between the air box and carbs, carbs and cylinder head inlets, exhaust system, or any blockages in these systems will affect the carb/throttle-body balance and should be rectified beforehand.

If one carb has a significantly different reading to the others there can be several reasons:

- Make sure the supplied vacuum hoses are not kinked, flattened, or loose.
- Ensure there are no leaks in the intake ducts or joints.
- There may be another engine fault or engine compression leak.

If you use an extension fuel line with a remote tank (something like a lawnmower tank) keep it roughly at the same height as your fuel tank would normally be.

The carbs/throttle-bodies are very sensitive to adjustment. Even adjusting the locknuts, if any, can affect the readings.

Warranty:

The Digi Sync digital manometer is guaranteed against defects in materials and workmanship for a period of one year from the date of purchase. We will repair or replace the equipment (at our option) provided you have followed the usage instructions and not abused your device.

