



OWNER'S MANUAL:

2-CHANNEL

4-CHANNEL

6-CHANNEL

Overview:

The Digi Sync is designed to allow users to balance the throttle plates on carburetors or throttle bodies. It is a digital peaking manometer which analyzes the peak-to-peak values of the vacuum pulsations. It does not use inline restrictors that would dampen the vacuum pulsations. Therefore, The Digi Sync has significantly higher accuracy than traditional fluid manometer and mechanical vacuum gauges. The Digi Sync also automatically self-calibrates to atmospheric conditions saving you setup time.

Throttle plate synchronization will improve the overall performance. This includes better acceleration due to improved throttle response, increased horsepower, improved gas mileage, and engine longevity by bring operating temperature back into spec. Digital throttle synchronization is better because it is more accurate, saves time with automatic calibration, and eliminates the risk of sucking manometer fluids into your engine.

Contents:

- The Digi Sync (2, 4, or 6 channel)
- Padded zipper storage case
- Internal magnet (allows unit to cling to metal gas tanks)
- Set of 5mm and 6mm adapters (**ONLY finger tight!**)
- Short vacuum hose to aide in adapter installation (only needed on some engines)
- Set of replacement vacuum caps with retaining clips

Operating Instructions:

- 1) Locate intake vacuum ports on your vehicle and remove the vacuum caps, or hoses, as necessary. Attach The Digi Sync's vacuum hoses to the ports.
 - a. Do **NOT** plug or cap-off unused vacuum line. Leave them open.
 - b. Keep The Digi Sync positioned above the carburetors so that fuel does not run into the vacuum lines.
Pro Tip: *Stick The Digi Sync to any metal surface. e.g. Your metal gas tank.*
Be aware that engines and exhaust may get hot enough to melt The Digi Sync and hoses!

Depending on your engine, you may need to temporarily install 5mm or 6mm adapters.

Important reminder: *Ensure these are only finger tightened. The use of tools for tightening may cause the adapters to break!*

Pro Tip: *If the vacuum port is in a hard-to-reach location, use the included short section of vacuum hose as an extension to aide in threading the adapters into place.*

- 2) If your fuel petcock is vacuum operated, pull a vacuum on the petcock line and then use vice-grips to clamp the line to ensure fuel flow.
- 3) With the engine off, turn on The Digi Sync and wait a few moments for it to finish self-calibration.
Note: The power button requires a firm button press.
- 4) If your bike is air-cooled, position a fan so it blows cool air over the cylinder head and/or radiator.
- 5) Warm the engine until it will idle reliably without requiring the choke (if present).
The engine should not be at full operating temperature at this point as it may lead to overheating later.
- 6) Refer to your vehicle's maintenance manual and set the idle as specified.
- 7) Adjust each carburetor:
 - a. The LCD screen will display all readings in the same order/arrangement as the vacuum hoses.
 - b. All carburetors should be adjusted to match the reference carburetor. This is the carburetor that is fixed and is not adjustable.
 - c. Attempt to adjust the screw in 1/8th turn increments.
 - d. It is best to blip the throttle after each adjustment to allow the vehicle to relax into its new setting.
 - e. It is normal for it to take several iterations to sync all carbs because each adjustment affects the others.
 - f. Engine idle speed should be monitored and adjusted when necessary to maintain a specific RPM.
 - g. **The best engine performance is achieved when The Digi Sync readings are within 1-2 kPa from one another. This will be easier on some machines than others.**
- 8) Once complete, do the following:



- a. Set the idle speed according to the service manual.
 - b. Remove the vacuum hoses from the vehicle's vacuum ports.
 - c. Replace all vacuum plugs that were originally removed from the vehicle. If these are worn, damaged, or brittle, replace them with extras provided.
If 5mm or 6mm adapters were needed, then replace them with the original screws to seal the ports.
- 9) Units – With firmware version 3.1 or later, The Digi Sync will always power-up showing vacuum in units of kPa. To cycle through the units displayed, press and firmly hold the button for at least 2 seconds.

Cautions, Warnings, and Disclaimer:

- Work in a well-ventilated area! Exhaust fumes can be lethal!
- Engine and exhausts can become dangerously hot!
- Be careful with any spilled fuel. Both the fumes and risk of fire poses a danger.
- 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.
- Anyone using The Digi Sync should have adequate 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 related tasks, hire a professional.
- By using The Digi Sync, the user agrees to assume ALL risks and shall NOT hold The Digi Sync responsible for any damages or losses inflicted upon yourself, others, equipment, or property while using this product.

Questions & Answers:

- Any or all of the channels may be used at one time. Unused channels should be left OPEN (not capped).
- 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 ONLY if all hoses are identical lengths.
- The RPM readout is only accurate on warm engines that have one piston per carburetor or throttle body.
- Range & Accuracy/Resolution of the vacuum gauge:
 - kPa: -100.0 to 0 in increments of 0.2
 - mBar: -1000 to 0 in increments of 2
 - Inch of Mercury (inHg): -30 to 0.0 in increments of 0.06.
 - PSI: -15.0 to 0.0 in increments of 0.03

Note: To simplify the readout, only positive values (indicating vacuum) are displayed on The Digi Sync. e.g. -35 kPa will be show as 35.

Troubleshooting Tips:

- Do not be overly concerned about getting your values to match what is indicated by your shop manual. In our experience, that overcomplicates the process. The entire purpose is to get the vacuum of each cylinder to match the others as closely as possible (so they are “synchronized”). i.e. Get all the numbers on The Digi Sync to match **as best as your engine will allow**. Best results are when the numbers match within 5kPa of each other. If this can't be accomplished then this is due to the design and tolerances of the specific engine, not a failure of The Digi Sync.
- If one carb has a significantly different reading to the others please check the following:
 - Vacuum hoses are not kinked, flattened, or loose.
 - No leaks in the intake ducts or joints.
 - There may be another engine fault or engine compression leak.
- Air leaks near the carbs, air filter box, cylinder head inlets, exhaust system, or any blockages in these systems will affect the vacuum readings and should be rectified before synchronization.
- If you use an extension fuel line with a remote tank keep it roughly at the same height as your fuel tank would normally be.
- The carburetors are very sensitive to adjustment. Even adjusting the locknuts, if any, can affect the readings.
- Do not be alarmed if your numbers fluctuate within 2 kPa with the engine off. This is a TINY amount (approx. 0.3 PSI). The Digi Sync is HIGHLY sensitive using industrial grade vacuum sensors. Even the slightest air currents will be detected.

Warranty:

The Digi Sync digital 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 these instructions and have not abused your device.

