MPE Data Acquisition Installation
by Dan Rudd
7/19/2004

Installing a data acquisition system is incorrectly perceived as a monumental task full of complicated wiring and fabrication. You know, lots of black magic! The reality is it can be installed in a very useful configuration in a couple of hours. I unwrapped the package at 9:30 on Friday night and was locking up the shop at 1:30 AM on Saturday morning. The first thing to do is spend the necessary time reading over the instructions and wiring diagrams. With the install instructions fresh in my mind it was on to mounting the MPE computer. Short on time and wanting to isolate the unit from vibration as well as locate it in a spot I could get to it for downloading data, I found a spot I could use old faithful zip ties and a sponge to temporarily install the unit. I will permanently mount the unit with MSD vibration mounts and its own aluminum panel later.

The MPE Data Acquisition System in its basic form is designed to monitor the following switch functions: wide open throttle, two step, and shift light functions. It also monitors engine rpm, output shaft rpm, and battery voltage. The wide open throttle monitor also serves as the start recording switch. This actually starts the unit recording data. The two step monitor also serves double duty as a marker to restart recording with the release of the two step as the zero point. The WOT monitor produces a magenta line across the top of the graph when the WOT switch is closed. The two step monitor produces a green line across the top of the graph when the two step is activated. The shift light monitor produces a red line across the top of the graph.

The output shaft RPM sensor needs an aluminum collar fitted with 6 magnets attached to the countershaft sprocket and a bracket fabricated for the pick up to sense the magnets. Since the output shaft RPM sensor requires a little bit of fabrication and I am in a time crunch I am going to skip installing this sensor for now. After looking at all the installation instructions, I am still a little confused on what switches need to be turned on when. You see the instructions are written in Australian! Yes mate, it's English, but not quite the same terminology. The WOT switch has 2 leads and uses a standard normally open type switch. I decided to use a handlebar switch to turn on the WOT switch. This makes it useless to actually monitoring the throttle, and I have to manually start the computer recording at the starting line.

The two step monitor can be wired using either a power or a ground. Mine and most other applications will use the power type. I wired this to my 2 step switch on my clutch lever so that it would provide a 12 volt power signal when the clutch is pulled in. I have decided I want to monitor my throttle stop activation instead of my shift light so I wired the shift light monitor lead to my throttle stop timer terminal so it supplies 12 volts when the throttle stop is activated. You can use this monitor for any event that happens on the run that can supply a 12 volt signal. Examples are nitrous activation, timing retards, shift lights, or boost controllers.

I still have the unit's rpm lead, power lead, and ground to hook up. The RPM wire is easy and simply connects to your ignitions tach output lead. The power lead has to stay connected even after you shut the bike off to maintain the run in memory. It doesn't pull much power, so I chose to use a plug connection instead of a switch for the power lead. This way I could plug it in at the same time I turn my air on at the head of staging and would have less chance of inadvertently turning off the computer after my run. The ground goes to the negative side of the battery or to the engine ground. Now I check all my connections and final wire routing making sure no wires are in position to get burned or pinched etc.

To test the unit, I have to install the MPE Data Acquisition software on my computer. The system's software comes with a cute little mini cd compatible with any cd rom drive. When you first install the software it will only work in demo mode. It has a couple of example runs stored for you to look at. You can download this demo version to check out on your computer for free at: http://www.mpsracing.com/products/MPE/DL06.asp The software is keyed for each data logger and must be registered before you use it to download runs. Clicking on set up, I entered my key code and serial number into the software. This unlocks the software. The whole install went extremely smooth and only took a few minutes.

Now, onto the testing process we go. First, without the bike running, I turn on the bikes power and plug in the power plug for the MPE computer. Flip the WOT switch to on. Pull the clutch in. Push in and release my launch button to start the launch. Let it run through its sequence of events and turn off the WOT switch. Now we are ready to download the data to the computer. Plug in the included download cable to the computer and the MPE unit and click on the Download OBC button and the download starts. It will then ask you if you want to load the run data. I clicked it and a graph popped up with a few lines on it. A solid magenta representing my WOT switch being on, a short green line from my clutch switch, and a broken red line for my throttle stop activation. A solid black line representing battery voltage is on the bottom of the graph. Next, I did the same test with the engine idling. Same result on the graph except the blue engine rpm line appeared in the center of the graph. Cool, it all works and I can go home to bed.
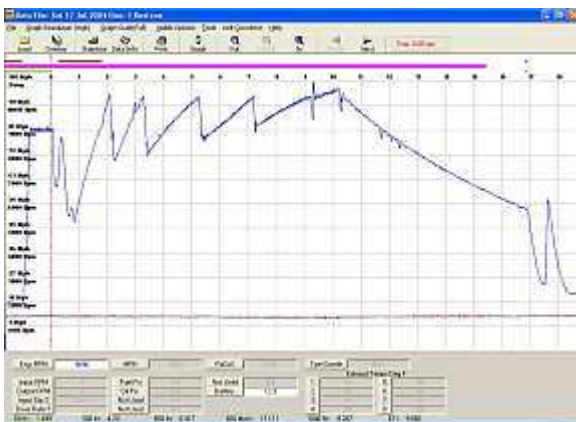
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Time to go to the track and test this thing in the real world. The first run I turned on the WOT switch after I had pre staged, then just followed my normal routine. I made my run and rolled into the trailer anxious to see the run on the computer screen. We hooked up the cable and downloaded the run. There it was, you could see exactly where the clutch was released, the rpm on the starting line, the point that the throttle stop came on and off and you could even see a little spike where the nitrous came on. Wow, this is really a cool tool! Next run all I got was a purple line, a green line and a 2000 rpm blue line. It seems you have 18 seconds after you turn on the WOT switch before you must release the two step and launch. This marks the recording to 0 seconds. I had turned on the WOT switch before pre staging and didn't launch before the 18 seconds. All the rest of the runs downloaded perfectly. I am going to rewire the WOT switch so it really is the WOT switch and not a toggle on the handlebar. That will eliminate the 18 second problem. Overall this is an easy to install kit that will surely teach me a thing or two about how my bike runs and how I can make it more consistent. For more information about the MPE Data Acquisition System please contact MPS at www.mpsracing.com - 380 Orange Lane – Casselberry, FL 32707 – Phone: 321.330972.8282 – Fax: 321.972.5123