

PRI 2004, Latest News



The Performance Racing Industry trade show is upon us again. Time to debut our latest updates and new products. Here's some of our latest developments, some too new to even get in our product brochures or price lists.

Data Loggers

We've really changed our line of data loggers. The original 4 channel DataMite is gone. Replacing it will be 2 different systems, the DataMite Lite for vehicles, and the Black Box II for dynamometers. Both systems offer significant improvements in both cost and capability.

Black Box II is a bench top data logger ideal for smaller dynos. It has built in weather station capabilities, 2 RPM inputs, 8 analog inputs, digital and analog outputs for simple control, and more. Pricing has not yet been finalized, but it is expected to start at approximately the same price as the DataMite. The advantages are:

- You can add more sensors than with the old DataMite.
- You will not require analog converters for many types of sensors (thermocouples will still require converters).
- The weather station will be incorporated into the box for easier operation, less cost, and improved accuracy (weather data is recorded with the test data).
- The testing process is faster and easier since the data is recorded directly to the computer (downloading is not required).

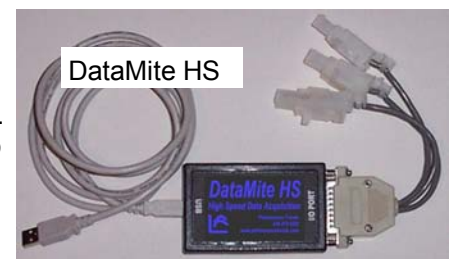
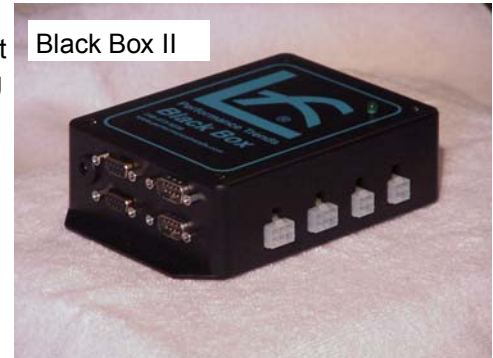
DataMite Lite has more channels than the old DataMite, but not as many as the DataMite II. It records 9 channels (2 RPMs, 2 analogs, built in accelerometer, 1 timer for lap timing), but has the option of adding 5 more analogs if needed. The system's small size (3.8 x 5 x 1.5 inches) makes it ideal for vehicles, including motorcycles. Its built in accelerometer will allow for track mapping for circle track and road racing, or critical vehicle data analysis for drag racing. The timer input allows for lap timing for lap and segment time analysis. Add the additional analog inputs and you can easily record shock travel (all 4 corners) and steering.

DataMite HS is a high speed device, designed primarily for high speed dyno data acquisition (like measuring tuning pressure pulsations or valve train dynamics). It also has analog output capabilities for simple dynamometer control. It attaches to the computer's USB port and can work in conjunction with one of our data loggers.

Other News

DT2-AFR remote A/F sampler lets you pull a sample from the exhaust and pass it by our wide band O2 (UEGO) sensor for accurate A/F measurement. It has these new options:

- Dual channels to accommodate 2 A/F sensors (like a left and right tailpipe), part # DT2-AFR2
- 220 VAC power for overseas operation
- Oil trap to trap contaminating oil before it gets to the sensor (used primarily on 2 stroke engines)
- Probe clamps (adjustable) to easily attach the probe to vehicle exhaust pipes



Price Reductions

Several products have been reduced in price since the last trade show. These include our:

- DT2-AF1 UEGO A/F sensor package (was \$499 and now is \$399) and all our UEGO A/F sensors and systems.
- Most all standard spring testers have been reduced by approximately \$100 by us offering a simple, Basic version of the software. The "Plus" version with all features is available for an additional \$100.

New Software

Rotating Inertia Calculator Removing weight from a rotating component gives a bigger

Rotating Inertia Calculator

Row	Description	Value	O.D.	I.D.	Width	Material	Weight	Units	Inertia	Eq. Wt	% Total	Imprmnt
16	Clutch		11	8		Use Wt	12	Lbs	1.93	15.60	.45	.32
1	Vehicle Weight	3500										
2	Driveline Layout	4 Wheel										
3	Rear Axle Ratio	3.08										
4	Transmission Ratio	1.93										
6	Torque Converter	No										
8	Engine Size, cu in	301.59										
9	Number of Cylinders	8										
10	Bore, in	4										
11	Stroke	3										
11	Stroke	3										.00
12	Do Engine Details	Yes										.00
13	Crankshaft Wt, lbs	32										2.54
14	Crank Damper		6	4	1	Steel	4.45	Lbs	.20	5.79	4.17	.00
15	Flywheel		12	0		Use Wt	21	Lbs	2.63	27.30	4.78	.20
16	Clutch		11	8		Use Wt	12	Lbs	1.93	15.60	1.85	.32

Fuel Injector Calculator

Options: Detailed Inputs - Allow Changing Defaults

Engine Description

Est. Fuel Flow By: Vol.Eff and Cu.In.

Estimated Peak HP: 210.1

Peak HP RPM: 4250

Displacement, cu in: 302

Displacement, ccs: []

Displacement, Liters: []

Est. Vol. Eff. %: 85% Modern Perf. Prod.

Engine Type: 4 Stroke, Modern Stock

Est. A/F: 12.5 Typical Full Power

Number Cylinders: 8

Boost, PSI: []

Injectors Layout: 1 per Cylinder

Rated Pressure, psi: 40

Actual Working Pres. psi: 40

Injector Firing: Once/Cyl Firing (typical)

Max Duty Cycle: 90% Typical

Rating for Injector Being Used: 19

Duty Cycle for Injector Being Used, %: 76.2

Pulse Width for Inj. Being Used, millsec.: 21.50

Estimated Total Fuel Flow, lb/hr: 115.76

Estimated Total Air Flow, CFM: 315.7

Power Curve Table

RPM	Tq	HP	DutyC%	PM
1500	21.0	60	19.7	15.79
2000	25.0	95	31.2	18.73
2500	27.3	130	42.9	20.61
3000	28.7	164	54.9	21.96
3500	28.9	193	66.0	22.63

Fuel Economy Calculator

Baseline Vehicle

Type: Front Wheel Drive

Weight, lbs: 2640

Aerodynamics: Stock Modern Compact

Frontal Area, sq ft: 19.0

Drag Coef: .37

Tires: Radial

Dia, in: 22.8

Final Drive Ratio: 3.94

Trans: User Defined 5 Speed

Gr 1: 1.54, Gr 2: 2.13, Gr 3: 1.36, Gr 4: 1.03, Gr 5: .81

Tq Converter: None (use clutch)

Capacity: 161.2

Lock Up: Starts 4th Gr

Stall RPM: 2700

Engine: 122 cid, 4 cylinder

Conditions: Road: Concrete, Wind: None, Temp: 70

Results: RPM: Gr 4: 3000, 35.30 MPG at 50.2 MPH

performance benefit than removing the same weight from a non-rotating component. This program lets you check just how large this effect is for various size components with different gear ratios, tire size, etc.

Fuel Economy Calculator is the most detailed program to predict the effect vehicle and engine modifications have on vehicle fuel economy. This program also Auto-Links to our Engine Analyzers to instantly check engine mods for MPG.

Fuel Injector Calculator lets you size electronic fuel injectors based on HP, engine size, boost, volumetric efficiency, RPM range and more.

Port Flow Analyzer now lets you record data concerning wet flow testing, like picture files of the wet flow patterns shown to the right.

Port Flow Analyzer v3.0

Test & Head Conditions

1 1.94" Valve

8:14 PM 08/01/1996

" Bore Adapter

20" Test Pres.

Leakage: 3

Test Operator: []

Test Comments

Example of SB Chevy head on SF 300 Bench

Help: Pitot tube port velocity reading for position 1 in Feet/Sec

Test Data

Point	Lit"	L/D	Range	Test Pres"	Flow Pres %	Test Temp	CFM	Picture File
1	.097	.050	3	3511.0	5915.8	145.5	439.0	C:\WB98\projects\VFPA\FPAPicD...
2	.194	100	4	20	62		119.8	C:\WB98\projects\VFPA\FPAPicD...
3	.291	150	4	19.8	74		144.3	C:\WB98\projects\VFPA\FPAPicD...
4	.388	200	5	19.8	54		157.6	C:\WB98\projects\VFPA\FPAPicD...
5	.485	250	5	20	57		165.7	C:\WB98\projects\VFPA\FPAPicD...
6	.582	300	5	20	58		168.7	C:\WB98\projects\VFPA\FPAPicD...

Port Flow Analyzer with Wet Flow Features

For all the latest news, send us an email with your email address and request to be put on our email mailing list. We send out newsletters every month or so.