

## The World's Fastest DT80

### **dataTaker DT80 Intelligent Data Logger Hits The Track**

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Stephen Harrison, an employee at dataTaker Pty Ltd and Sales Manager for Australia and New Zealand, asked himself the question “How fast can a DT80 go?” The answer to date has been nearly 149 MPH and 0-124 MPH in 10 seconds. Stephen took his work both to home and play as he raced in the SuperMono European racing class, arguably the least technically restricted form of motorcycle road racing out there. The rules were simple: The vehicle had to have a single-cylinder engine that ran on gas on a bike with two wheels--everything else (other than safety-related features) was open for customization. For a number of years Stephen had seen the DT80 utilized in any number of diverse applications and decided to put it to use himself. Up to this point he had been occasionally fine-tuning his bike, but the more he raced, the more he realized that nothing was more important than having well-tuned suspension, consistent traction and ‘feel’, all of which were critical to achieving fast lap times. Tired of using paperwork to schedule maintenance checks, he now wanted a technological solution. Stephen also needed a way to monitor the temperature inside his racing suit to find out what clothing was best, since every time he pulled his protective suit on, he’d experience that ‘instant sauna’ feeling underneath layers of impact-absorbing body armor--on a 60°F day, his torso was suddenly exposed to temperatures in the high 70s with a 90% humidity. Any vented clothing felt fine when he got up to speed and evaporation bottomed out at 50%, but he was still overheated, and as soon as he slowed again, the temperature went right back up.



Stephen installed a lightly modified **dataTaker DT80 Intelligent Universal Data Logger** beneath the gas tank of his 640cc SuperMono #41 racing motorcycle. Modifications to the DT80 involved changes to the external sheet metal and serial port, along with internal modifications allowing logged data to be resolved to around 0.1 seconds. Two thermocouples were connected to the DT80 and taped to the inside of Stephen’s racing suit to measure internal temperature.

Analog and digital channels, high-speed counter inputs, phase encoder inputs and programmable serial sensor channels allowed the DT80 to easily connect to most sensors and data measurement sources. Almost any physical value including temperature, voltage, current, 4-20mA loops, resistance, strain gauges, frequency, and more could all be scaled and logged. The DT80 datalogger provided detailed information including the motorcycle’s speed, temperature and suspension performance using its 5 to 15 universal analog sensor inputs and 12 digital channels. This information allowed fine-tuning of various settings to gain the best possible handling on the track. The universal data logger could store up to 10 million data points in user-defined memory, with independent control of schedule size and mode

to log only as long as the current race. For maintenance purposes, the DT80 also archived data on alarm event, copying to USB memory and transferring via FTP if needed.

The DT80 stand-alone, low power data logger featured a built-in display, robust construction, 18-bit resolution, and extensive communications capabilities. Communications features included RS232 with modem support, USB, Ethernet and USB memory stick ports for connection to the DT80 locally, remotely or over the Internet. The web interface allows users to configure the DT80, access logged data and see current measurements as mimics or in a list using a web browser.

Actually getting the data was as easy as leaning into the first turn. After each qualifying session and race, Stephen carefully examined the suspension travel and wheel speed data recorded to determine if any adjustment was required. DT80 data loggers were designed with flexibility, accuracy and reliability having priority over speed, yet the amount of data recorded during a short race could total nearly 40,000 individual data points. Additional maintenance data such as distance travelled, temperatures and engine hours was also logged to ensure parts were replaced prior to known failure limits. Stephen could also see the relative front to rear suspension travel at various points below. For example, the front suspension was showing insufficient damping causing spikes in the data. Normally the data was reduced to cover individual points on the circuit and compared after each single adjustment had been made.

Stephen Harrison gained several benefits from installing the DT80 directly onto his racing bike, most important of which was the ability to target problem areas for fine-tuning performance. The DT80 was never designed with this particular application in mind, but the fact is that it worked, gathering information far more reliable than using the traditional seat-of-the-pants method. Additionally, if Stephen thought he was having a problem on a particular section or corner of the track, he could simply review the data recorded at that point and look at exactly what was happening, like RPM or wheel speed and see how he was using the bike. This precise equipment helped Stephen to ensure continued performance and plan future improvements in an otherwise wild and chaotic sport.

For further information on the dataTaker DT80 data logger, other dataTaker data logging devices, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Applications Analyst at (800) 956-4437 or visit the website at [www.DataLoggerInc.com](http://www.DataLoggerInc.com).

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