

Second Time's A Charm

The Beloved AiM Solo DL Gets a Complete Refresh

by Cameron Parsons // Photos by Joe Singleton



IT'S TIME TO FACE TO THE TRUTH ABOUT GETTING BETTER LAP TIMES. For 99-percent of you, the biggest opportunity for improvement is in your driving. Sure, power adders and some sticky tires will help, but you're not getting the most out of your money unless you learn how to handle your car. So what can you do to get better without spending triple or even quadruple digits a day on professional coaching? Like with fixing any other problem, utilizing the right tools is key to meeting your goals. For those who want to fix up their driving on a budget, AiM Sports offers the Solo 2 and Solo 2 DL, successor to the first generation Solo and Solo DL GPS lap timer. The Solo took over the track-day enthusiast and hobby racer market since its release, and now the Solo 2 promises more features and functionality to help you go faster.

IT CONTAINS AN INTERNAL THREE AXIS +5G ACCELEROMETER, A THREE AXIS GYRO, AND A THREE AXIS MAGNETOMETER.

Old Timer

Upon its release years ago, the AiM Solo was a rare breed. Data loggers were falling in price due to technology and hardware becoming more accessible, but most systems on the market were still cumbersome and required a permanent installation. Many of the more compact systems of the time were limited in functionality, providing little more than GPS-based timing and a predictive timer if you were lucky. AiM went for the best of both worlds with the Solo, offering huge potential for data acquisition while allowing its users to quickly install and remove the system in any car.

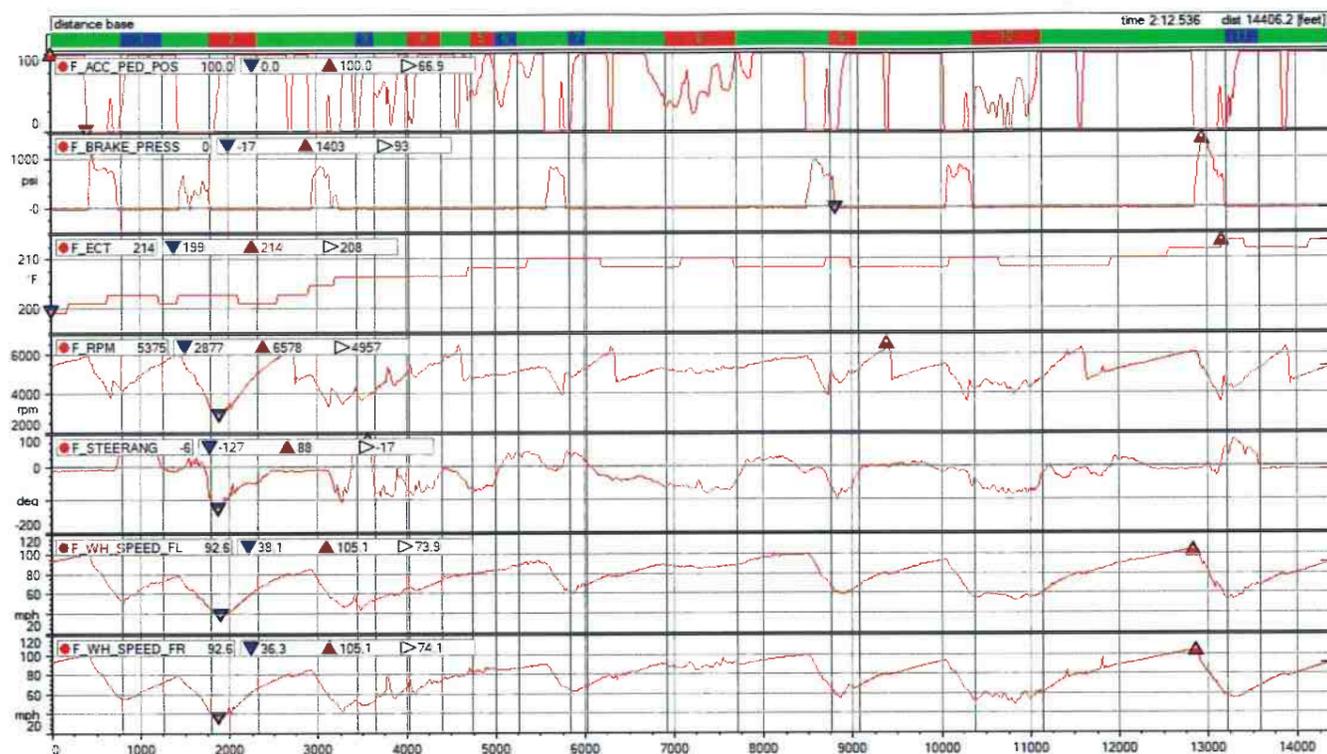
The concept of the AiM Solo thrived on the fact that it could operate completely wire-free. Using a built-in GPS sensor, accelerometers, and internal battery power, the Solo could collect a wealth of useful data. Beyond that, the DL variant added external connection possibilities for CAN data as well as video. This capability increased its functionality tenfold by providing users the ability to view data like throttle position, brake pressure, steering wheel angle, wheel speeds, and more. Building a proper successor to this versatile device would be a tall order, and AiM Sports recently introduced the newly refreshed version. The AiM Solo 2 and Solo 2 DL just hit the online and store shelves, many of which have been backordered for weeks. So what can users expect to find in this new iteration?



The AiM Solo 2 DL's screen can be back-lit in one of seven colors available for the best user experience in various conditions.

Common Ground

When it comes down to the physical hardware inside the Solo 2, there's not that much that separates it from the previous generation model. Just as before, it contains an internal three axis +5G accelerometer, a three axis gyro, and a three axis magnetometer. The unit still tracks its location with the help of a 10 Hz internal GPS sensor, and runs on an internal rechargeable lithium battery. They both even weigh the same at 240 grams and are sealed to an IP67 waterproof standard to last through varying weather conditions. Although the Solo 2 sports a slightly different form factor that now uses a new style backing plate (you can't reuse the first generation Solo backing plate on it), it's even nearly the same exact size at 98x73.7x30.2mm, versus the Solo's 98x78x30mm dimensions. At face value, one might think the Solo 2 is the same product wrapped in a new package, but this is hardly true.



A New Look

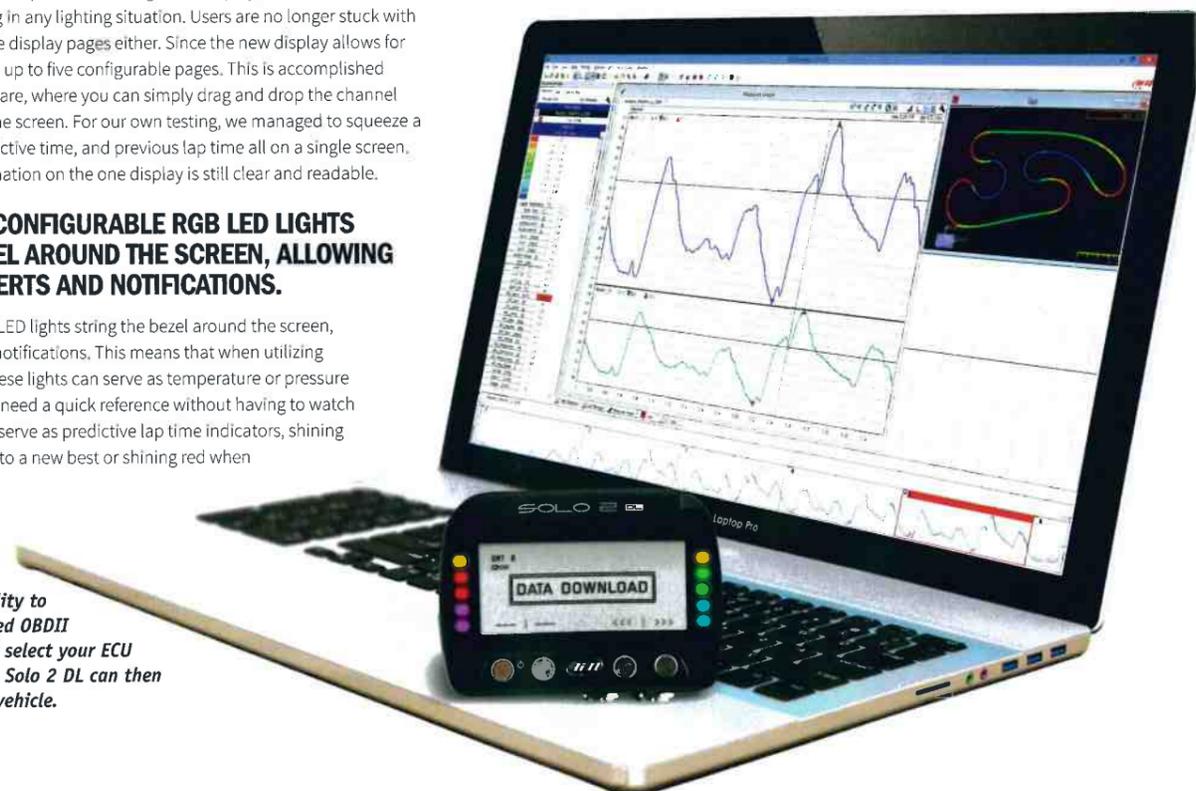
There are many commonalities between the original Solo and the Solo 2; however, the improved features that the new generation brings with it are significant. First, the Solo 2 offers a more practical and intuitive display. The 238x99 pixel graphical display allows for more information and detail to be presented on screen than before. Users also have the seven different color options to backlight the display, each of which make the screen bright but not blaring in any lighting situation. Users are no longer stuck with only a couple, non-customizable display pages either. Since the new display allows for more detail, the Solo 2 supports up to five configurable pages. This is accomplished through the Race Studio 3 software, where you can simply drag and drop the channel information of your choice on the screen. For our own testing, we managed to squeeze a running lap time, best lap, predictive time, and previous lap time all on a single screen. To our surprise, all of this information on the one display is still clear and readable.

A SERIES OF 10 CONFIGURABLE RGB LED LIGHTS STRING THE BEZEL AROUND THE SCREEN, ALLOWING FOR CUSTOM ALERTS AND NOTIFICATIONS.

A series of 10 configurable RGB LED lights string the bezel around the screen, allowing for custom alerts and notifications. This means that when utilizing the DL's CAN interface ability, these lights can serve as temperature or pressure alerts, or even shift lights. If you need a quick reference without having to watch numbers, these lights can even serve as predictive lap time indicators, shining green when you're on your way to a new best or shining red when you're falling behind.

The Solo 2 DL offers the ability to read ECU data via an included OBDII adapter out of the box. Just select your ECU model from the list, and the Solo 2 DL can then log essential data from the vehicle.

Lap times and basic data can be viewed directly on the Solo 2 DL. However, downloading the data over Wi-Fi to a computer enables users to view and analyze information in the Race Studio Analysis software. This provides features like basic X/Y graphs, GPS track mapping, scatter plots, histograms, and more.

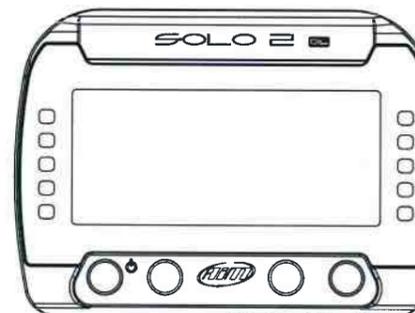


ECU: MAZDA - MX5 Enable the CAN Bus 120 Ohm Resistor

Enabled Channels (Max: 120) 20 / 20 Silent on CAN Bus

ID	Name	Function	Unit	Freq
CC01	ECU_Steering_Ang	Angle	deg	10 Hz
CC02	ECU_Brake_Pres	Number	#	10 Hz
CC03	ECU_Brake_Sw	Number	#	10 Hz
CC04	ECU_Rpm	Engine RPM	rpm	10 Hz
CC05	ECU_Veh_Speed	Vehicle Spd	mph 0.1	10 Hz
CC06	ECU_Pedal_Pos2	Percent	% 0.01	10 Hz
CC07	ECU_Pedal_Pos	Percent	% 0.01	10 Hz
CC08	ECU_Clutch_Sw	Number	#	10 Hz
CC09	ECU_Intake_Air_T	Intake Air Temp	C 0.1	10 Hz
CC10	ECU_Water_T	Water Temp	C 0.1	10 Hz
CC11	ECU_Oil_Lamp_Sw	Number	#	10 Hz
CC12	ECU_Whe_Spd_FL	Wheel Spd	mph 0.1	10 Hz
CC13	ECU_Whe_Spd_FR	Wheel Spd	mph 0.1	10 Hz
CC14	ECU_Whe_Spd_RL	Wheel Spd	mph 0.1	10 Hz
CC15	ECU_Whe_Spd_RR	Wheel Spd	mph 0.1	10 Hz
CC16	ECU_Spark_Adv	Angle	deg	10 Hz

THIS IS ACCOMPLISHED THROUGH THE RACE STUDIO 3 SOFTWARE, WHERE YOU CAN SIMPLY DRAG AND DROP THE CHANNEL INFORMATION OF YOUR CHOICE ONTO THE SCREEN.



5 pins Binder 712 female connector external view



8 pins Binder 712 female connector external view

EXP connector	
1	CAN High
2	GND
3	+Vb out
4	CAN Low
5	+Vb ext

ECU connector	
1	CAN ECU+
2	CAN ECU-
3	+Vb ext
4	RS232TX
5	RS232RX
6	K Line
7	GND
8	RPM

The connectors enable it to expand upon its functionality beyond just GPS and accelerometer data. Users can log CAN data, as well as utilize AiM Sports' SmartyCam HD to provide a data overlay on onboard videos.



Superiority

Many a Subaru flat-4 "Boxer" engine—fortified with Manley components—propelled WRX/STI racers to important wins. Manley's world-class engine manufacturing has enabled tuners to push EJ20 and EJ25 engines to the limits of performance and reliability. That's why the best of the best choose Manley.

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Chris Fleming



"We choose Manley as our exclusive component manufacturer."
J.J. Jabari



"We have been using Manley for years and can't speak highly enough about the quality and service we receive."
Iain Litchfield



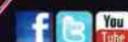
"Manley has been an integral part to the success of our engine program."
Alex Gooch



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Digging for Data

One of the greatest advantages to AIM Sports' Solo timers is that they also double as data loggers. Even better, internal memory has been expanded from a modest 16 megabytes to a massive four gigabytes. This enables you to store hours upon hours of data in the device, in case you ever decide to go endurance racing or you just like to hoard information. Many drivers, instructors, and engineers can pull a great deal of information out of GPS-detected speeds and accelerometer data with the help of the internal sensors. When pieced together in AIM's Race Studio Analysis software, one can deduce areas of improvement in throttle and brake application, cornering speeds, driving lines, and vehicle setup.

Add on the CAN interfacing abilities that come with the DL version, and you'll find yourself entering a whole new world of irreplaceable data. This is accomplished with the help of an OBDII adapter or RS232 connection that readily reads more than 1,000 different model ECUs. Instead of matching up longitudinal forces to throttle and braking applications, you can pull information straight from your vehicle's sensors to see the exact numbers. The amount



SOLO 2 DL

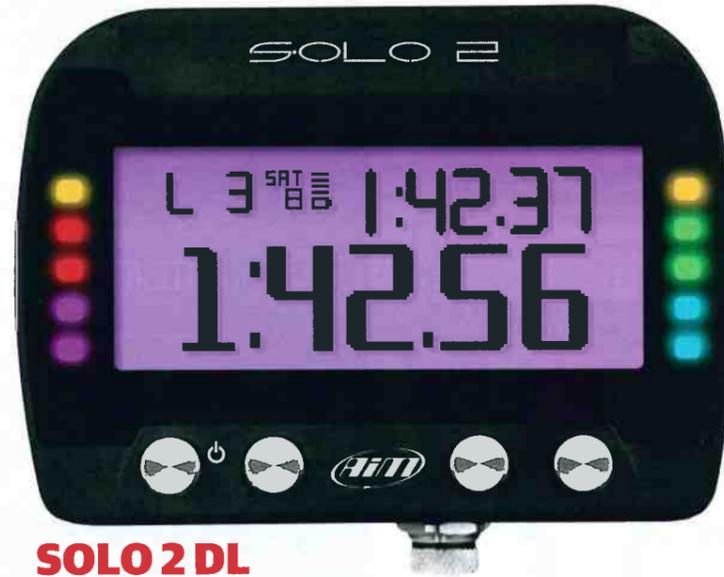
ONE OF THE GREATEST ADVANTAGES TO AIM SPORTS' SOLO TIMERS IS THAT THEY ALSO DOUBLE AS DATA LOGGERS.

of data possible here is only limited by the vehicle's ECU and whatever custom sensors you may install. If you're driving a more modern, popular vehicle, you'll likely find yourself with access to a myriad of data channels simply through the OBDII port. This might include and not be limited to channels like throttle and brake position, steering angle, independent wheel speeds, gear, RPM, traction control activity, and boost. This ability turns the Solo 2 DL from a handy track toy to a must-have tool for any racer and track enthusiast.

If you can't wait to download the data to your computer, the Solo 2 and Solo 2 DL offer a new recall feature. While the first and second generation Solo timers enable users to flip through previous session lap times, the new model provides actual lap data on the display. With this, users can choose a lap to view speeds and RPM at any given point. Be on the lookout, as AIM Sports is also on its way to introducing mobile device features as well. This will let users hop on their phone to connect to the Solo 2 DL to analyze data, manage the track database, or view live CAN stream information.

Pluses and Minuses

Although the Solo 2 DL is packed with features and functions, not all of these benefits come without some sacrifice. The bright and crystal-clear display is great to have, especially when you stick the device on your windshield on a cloudless, sunny day. However, it appears that the Solo 2 tends to run the battery down quicker than the first generation model. We have yet to



SOLO 2 DL



Mount Up

The Solo 2 DL is equipped with two powerful magnets on the back, allowing users to affix it to a custom fitted backing plate. This plate can either be mounted to a RAM mount with a suction cup or roll cage clamping mount, or it can be more permanently bolted down wherever you have space on the dash. This way, users can quickly and easily bring the Solo 2 DL with them on track, and then remove it afterwards without having to undo any clamps or screws.

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SUPERTECH

Inside the box, users will find everything needed to get started for charging the device and logging data internally and from the vehicle ECU. Mounting hardware, however, must be purchased separately.



- What Comes In The Box**
- Solo 2 DL
 - Solo 2 Cable
 - Solo 2 Battery Charger
 - Solo 2 DL Mounting Bracket
 - Solo 2 DL User Manual
 - Race Studio 3 Software Installation CD
 - AIM Sticker and AiM 2018 Racing Guide

THE SOLO 2 AND SOLO 2 DL FEEL LIKE A PROPER STEP ABOVE THE PREVIOUS GENERATION TIMER.

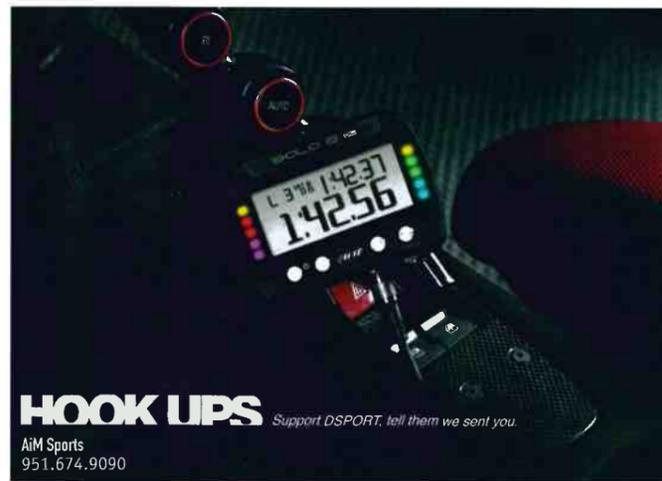
run a side-by-side test to drain them from a full battery to nothing, but the difference has already been noticeable over the course of about an hour of runtime.

When it comes to charging the device, users will find themselves no longer with an option to charge the Solo 2 via USB. The device now requires a 12-volt input, which means you'll need an AC wall outlet in order to freshen up the battery. That being said, charging the first generation Solo off of a laptop USB port was a slow crawl, while charging the Solo 2 on a wall outlet is lightning fast. Still, we liked the USB option as a backup, and AC power is often times a pain to get access to at a race track. The removal of the USB port also means there is no longer any method of physically connecting the Solo 2 to a computer for configuring or downloading. This process is now strictly taken care of through a Wi-Fi connection. Some users will miss this, while others might not care at all. The Wi-Fi functionality of the Solo 2 worked for us flawlessly; establishing a connection was simple, while uploading configurations and downloading data files were plenty quick. There's nothing wrong with the Wi-Fi method, but it's still not as quick and simple as plugging in a USB cord.

Timing Evolved

Despite a very few shortcomings, the Solo 2 and Solo 2 DL feel like a proper step above the previous generation timer. For users who want to keep things simple, the Solo 2 offers the ease of powering on the device and sticking it to the windshield to start logging. Its ability to detect tracks automatically or build new tracks with a single menu option only adds to its practicality for track days and race events. Now that AiM has

added even more features to the Solo 2 and Solo 2 DL, it'll be difficult to find a better bang for your buck in terms of a compact GPS timer with data logging. This rings true for both the hobbyist who wants to keep things simple as well as the die-hard racer who demands access to detailed data. One might simply want a predictive timer on their dash and the ability to compare speeds from lap to lap, while the other researches how driving inputs each affect the car's handling through corners. Either way, the Solo 2 and Solo 2 DL serve as one of today's ultimate driver coaching tools, whether you're in it to teach others or yourself how to drive faster.



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