

Case Study



Customised street trucks get control through IMO's integrated miniature controller.

The combination of small size and high functionality offered by IMO's miniature i3 (I Cube) controller is providing the ideal control platform for the latest in customised trucks, the Dragon SSR, from Evolution Auto Sound of British Columbia Canada. The i3, together with IMO's iSmart and Smart I/O, is employed to automate all aspects of the fully customised 'retro' vehicle, which is a show case for Evolution Autos technology in competitions and shows right across North America

The Dragon SSR is based upon the Chevrolet SSR (Super Sport Roadster), a convertible pick-up truck manufactured by Chevrolet between 2003 and 2006. The truck was inspired by classic Chevrolet pick-ups of the 1940's and 50's. It had a long-wheelbase platform, and featured "retro" styling and a steel retractable hardtop. Early versions boasted a 5.3litre block and 300hp; one of these units was used as the pace car at the 2003 Indianapolis 500. Final versions had 6- litres and 400hp, producing a 0-60mph time of around 5.5 seconds and a standing quarter mile in 13.95 seconds.

Evolution Auto Sound has over 50-year's experience of customising

trucks, so the company was ideally qualified to undertake probably its most ambitious project yet: to metamorphasise a 2005 Chevrolet SSR into the beautifully wild, 500hp Dragon SSR. The project was complex from the start, with virtually all aspects of the vehicle being subject to some degree of automation. This necessitated the use of sensors at all points around the vehicle; and the control of actuators, geared and servo motors on items such as the vehicle doors and tailgate. The problem was integrating all these functions into a single, compact centralised controller that could control the different features of the vehicle while in two modes – show mode, and run mode.

For a solution, Evolution Auto turned to IMO Canada. Initially, the customiser was looking for a method of automating the vehicle's lights, doors, and other features, in synchronisation with music and a video. With the number of inputs and outputs that were required, and the demand for client interaction, IMO's new i3 (I Cube) was judged as the best controller to meet these requirements, both from size and functionality points of view. Although measuring just 91.63mm* square,

IMO i³ Controller provides the ideal platform

Customer:
Evolution Auto Sounds

The application:
To metamorphasise a 2005 Chevrolet SSR into a fully wild, 500hp Dragon SSR. Virtually all aspects of the vehicle was subject to some degree of automation. Requiring the use of sensors at all points around the vehicle; and the control of actuators, geared and servo motors on items such as the vehicle doors and tailgate.

The solution:
IMO i³ Controller

The result:
Evolution Auto now have the perfect solution to provide the ideal control platform.



by 57.5mm deep, the i3 controller combines both logic and HMI functions, digital and analogue I/O – including remote I/O – and open bus communications - in a single, easy-to-mount unit.

Importantly, the i3 controller also provided the system expansion capabilities that were required as the Dragon project progressed. These were growing all the time, with the air suspension system, built-in fridge, bar and entertainment systems, trunk and hood operations, and the cueing of the specialty lighting on the vehicle all now automated, and the door, trunk, hood and suspension operations synchronised to music and a looping video. Here the digital timers and counters integrated into the i3 came into their own. Evolution Auto used them to synchronise with the video, and to communicate to one of IMO's iSmart units – an easy-to-use and highly cost-effective controller for small automation applications - and Smart I/O for sequencing.

The transparency of the i3 controller, with its built-in HMI (integrating a 128 x 64 LCD display featuring programmable IP65 (NEMA4) function keys) allows the user to select through an interactive menu, two modes: show and run. In run mode, the client can use the vehicle in normal driving – without any of the systems active. In show mode, all the functions automate and synchronise to a video. However, before these functions can be actuated, the i3 checks to make sure the vehicle is stopped, parked, and the wheels are in a parked position.



As a final showstopper, the i3 can be controlled manually from a cell phone. The controller has a built-in GSM modem, so all the customer has to do is to simply enter codes to cue functions in the overall control program.

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