How it Works
The InfinityBox intelligent wiring system is a modular, solid-state microprocessor-controlled automotive electrical system that replaces or augments an existing traditional wiring harness, regardless of make, model or year of vehicle. Wiring the vehicle is simplified because the wires no longer run all the way from the switch and fuse box to the individual accessories. Switches that control electrical accessories are wired to the MASTERCELL™ Input Unit which sends instructions to the connected POWERCELL™ Control Units. These units provide fuse protected power the connected electrical accessories in the vehicle and they can be positioned near the accessories.

System Connection Diagram

MASTERCELL™ Input Unit
Each MASTERCELL™ provides up to 50 switchable input nodes and can manage up to 16 POWERCELL™ Control Units. For more control, simply add more MASTERCELL™ and POWERCELL™ units. Plus, all inputs are ground-switched which simplifies the electrical system.

POWERCELL™ Control Unit
Each POWERCELL™ provides circuit protection and distributes power to the car’s accessories (for up to 10 output nodes). Each POWERCELL™ Control Unit uses MOSFET ultra-reliable MOSFET switches that can handle all typical automotive loads, up to 25 Amps per node. A typical installation would locate one POWERCELL™ at the front of the car for lights, ignition etc. with a second POWERCELL™ in the rear of the car to control the turn signals, brake lights etc.

Programming
The system can be ordered with different programming configurations i.e. rear engine or front engine. The standard programming will cover the majority of vehicle applications. Should you require a custom configuration, infinitybox.com technicians can create a custom program which can be transferred to your InfinityBox system using the inCODE™ programming accessory. This accessory connects to your PC via USB and allows you to download the custom program to the MASTERCELL in order to update your system.

Diagnostics
The MASTERCELL™ includes an inSIGHT™ diagnostic module that constantly tests the system to tell you the status of your switch inputs and power outputs including on/off state, battery voltage, cell temperature, output status and much more on a backlit LCD screen. Each POWERCELL™ features an LED indicator on each of the 10 outputs, so you can see how the circuit is working. Heartbeat LED on each CELL indicates system connectivity.

Reliability
InfinityBox provides the ability to let your car limp home, even after a catastrophic system failure. InfinityBox software has the ability to overcome node failures caused by loss of communications between input and control units. In addition, the software provides a two-stage continuous failure analysis for all outputs. The hardware also has provisions to overcome possible node failures in the unlikely event of a processor failure.

Ruggedly built
Connectors and housings are environmentally sealed to keep water out and the system is rated up to 125 °C.
InfinityBox Accessories

inRESERVE™ Active Battery Monitoring
Make dead batteries a thing of the past. With inRESERVE Active Battery Monitoring System you can feel confident that your car will be ready to drive no matter how long it sits in your garage. inRESERVE starts working when you turn off your car. It constantly monitors the voltage level of your battery when the ignition is off. If the system voltage gets too low, inRESERVE drops the battery, preserving the remaining voltage. This prevents deep discharging which is both detrimental to your battery life and inconvenient for you.

inMOTION™ Motor Controller Cell
The inMOTION Control Unit brings a new level of control to the InfinityBox system. The existing POWERCELL Control Units allow you to easily switch outputs on and off. The addition of inMOTION now allows you to control 5 outputs that need to be reversed. Things like window-lift motors, convertible tops and lock solenoids can be controlled just as easily as anything else in your car. Using the same plug-and-play connectivity as the existing MASTERCELL and POWERCELL, inMOTION easily integrates into your existing system. Connect the power & ground harnesses, wire the outputs and connect the CAN cable. You’re up and running.

inLINK™ RF Control Module
Why limit control of your electrical systems to in-dash switches or buttons. The inLINK™ radio control module features a 4-button key fob that can be programmed with 16 different functions. You can program any of your automobile’s electrical functions that are connected to the InfinityBox system from a range up to 30m from your vehicle. A 64-bit rolling code ensures high security. Simply connect the included circuit board into the MASTERCELL™, it will be recognized, NO system programming is required. Note: Cannot be installed if inTOUCH MOBILE™ is installed in MASTERCELL™.

POWERCELL™ Control Unit
Additional POWERCELL™ Control Units can be added to your system, each is matched to the exact specifications of the POWERCELL™ control unit(s) that came with your kit. All POWERCELL™ Control Units feature Heartbeat LEDs to indicate system connectivity and indicate output status. Simply purchase a new POWERCELL™ Control Unit, plug it in and you can add an additional 10 outputs to your InfinityBox system. Functionality is controlled by the MASTERCELL™ Control Unit & can be custom programmed.

inDASH™ Dashboard Wiring Harness
Makes connecting your dashboard instruments and switches to your InfinityBox system much easier. The inDASH™ dashboard wiring system has everything you need to wire your dash, from the wires and terminals to heat shrink labels to keep you wiring organized and intuitive. All the electrical dash connections can be connected or disconnected by unplugging just two headers. This means you don’t have to unplug every connection individually to remove your dash for trouble shooting or maintenance.

inCODE™ Programming Module
This module allows you to update your system with customised programming from infinitybox.com. The simple Windows® based programming interface allows you to download your configuration directly to the MASTERCELL™ or POWERCELL™ control unit via the included header cable. Connects to the computer using a standard USB cable.

inVERT™ Mini 12V Switched Trigger Connector
The connector gives installers the flexibility to connect 12-volt switched triggers to the MASTERCELL™. Its simple circuitry buffers the incoming trigger signal and converts to the required ground signal. Small form factor & easy to install in your harness. The kit includes the wires to splice into the harness and is protected by heat shrink tubing.
InfinityBox Accessories (cont’d.)

**inVIRONMENT™ Vintage Air Controller**
This module gives you complete control of the blend position, fan speed and temperature settings on your Vintage Air Gen-IV™ System. You now have complete freedom to control your heat and air-conditioning with the InfinityBox system through your choice of buttons or switches.

**inTOUCH NET™ Web-Enabled Control**
inTOUCH NET offers revolutionary connectivity into the InfinityBox system through any web-enabled device. You can control the functions in your car through any Apple, Android, Windows, Blackberry or Nokia device. You get complete control of any of our base kits and our entire suite of accessories including controlling your windows through inMOTION and your heat & A/C through inVIRONMENT.

**inDASH MAX Dash Lighting Controller**
This controller offers a better way to wire the indicators and illumination for your dash thereby eliminating the need to splice into your POWERCELL outputs to power the dash lights. Commands are automatically sent from the MASTERCELL when the turn signals, high-beams or parking light switches are activated. The indicators are managed from within inDASH MAX.

**inLIGHTEN™ LED Lighting Controller (for special lighting effects)**
inLIGHTEN is designed to control LEDs. These can be discrete lights or strips of lights. You can control individual coloured lights or use inLIGHTEN to control RBG LEDs for a broad range of dimming, colour and pattern effects. 16 preset lighting patterns are standard in the module for everything from accent lighting to ambient effects to creating a dance club in the vehicle. *Not required to control LED headlights, tail lights or indicators on vehicle.

**Spare Fuses for the InfinityBox System**
We stock the entire range of fuses that are used within the InfinityBox system. The Cell outputs are protected with Minifuses for which we stock ratings from 2A to 30A. The POWERCELL™ inputs are protected by a 60A Megafuse which we also stock.

**InfinityBox Advantages**

**Fast & Easy To Install**
Typical wiring harnesses can take up to 40 hours to install, with the InfinityBox Intelligent Wiring system you can cut that time in half. Plus you don’t have to have any sort of experience working with electrical systems to get it done. Just plug in the power cables, hook them up to your loads and the system tests itself to make sure everything is working. Should you encounter any problems, infinitybox.com offer trouble shooting support via their expert engineering team, whom take you through the process step by step to make sure that you’ve got everything properly installed.

**Reduce Weight**
On top of ease of installation, race enthusiast will love the weight savings gained using our system. Less weight means more speed, less fuel consumption and improved handling.

**Flexible & Reliable**
Improve reliability by replacing complex wiring schemes and reduce the number of electro-mechanical components. Tuners and restorers will also love the flexibility of the system. Whether you choose to replace your current electrical system or lay an InfinityBox kit over an existing system.

**Why Use Multiple Powercell’s?**
The use of multiple POWERCELL™ Control Units allows them to be positioned in different areas of the vehicle. A typical installation would locate one unit at the front of the car for lights, ignition, starter solenoid, radio etc. A second unit would be mounted in the rear of the car to control accessories like the fuel pump and lights. This layout simplifies and reduces wiring because you directly wire from the accessory to the POWERCELL™ Control Unit (located nearby). Wires no longer run all the way from the switch and fuse box to individual accessories.
Mastercell Specifications

Power
The unit is a low current, low voltage system which minimizes high current wiring under the dashboard and the risk of causing an under-dash fire. All inputs are ground-switched to simplify the electrical system. Input switching voltage/current: 5V—0.0005 Amp. Maximum frequency of input state change: 50 Hz.

Input Options
In addition to standard ON/OFF inputs there are 2 analog inputs. Inputs can be wired logical (OR ) or (AND) at your discretion. You can even achieve OEM style functions in which multiple inputs are controlled (enabled or disabled) via a single switch (ie. ignition).

Control Capabilities
You may program a light to blink as a turn signal, or stay lit as a running light. Each mode of behavior is called a “personality.” The personality definitions are stored in the MASTERCELL™ Input Unit which assigns them to the POWERCELL™ Control Unit dynamically, thus allowing each output to be programmed as; Track, Toggle, Delay, Timed, Soft-Start or Pattern mode of operation.

Input / Output Relationships
1. ONE to ONE: One input on the MASTERCELL™ unit controls a single output on the POWERCELL™ unit.
2. ONE to MANY: One input on the MASTERCELL™ unit controls multiple outputs on a POWERCELL™ unit.
3. MANY to ONE: Many inputs on a MASTERCELL™ unit controls one output on a POWERCELL™ unit.
4. MANY to MANY: Many inputs on a MASTERCELL™ unit control MANY outputs on a POWERCELL™ unit.

System Failure Backup
InfinityBox provides the ability to let your car limp home, even after a catastrophic system failure. The software has the ability to overcome possible node failures caused by loss of communications between input and control units. In addition, the software provides a two-stage continuous failure analysis for all outputs. What’s more, the hardware has provisions to overcome possible node failures in the unlikely event of a processor failure.

Rugged Construction
All plastics used in enclosures are UL 94V0. Bases are made from glass reinforced high-temperature nylon for strength and temperature resistance. Covers are made from high-temperature polycarbonate for visibility and strength. All wires have high-temperature TXL insulation. Connectors and housings are environmentally sealed to keep water out. InfinityBox recommend under-dash mounting of this unit. Maximum temperature: 85°C.

Security
Remote control accessories use highly secure radio links and protocols such as 64-bit rolling code security. The ignition & starter functions will not operate when security is ON.

Dimensions: 50.8mm x 182.7mm x 165.2mm (including mounting holes).

Powercell Specifications

Each POWERCELL can power up to 10 outputs (nodes). Additional POWERCELL units can be added to the system to control extra nodes.

- Output node technology: MOSFET (up to 25 Amps).
- 125 Amp of total current draw.
- Output switch type: high-side.
- Pulse-Width Modulated (PWM) Nodes: 8.
- Maximum temperature: 125°C.
- Built-in diagnostics status indicators on all output nodes.
- Fuses used to protect outputs are NOT included.

Dimensions: 50.8mm x 182.7mm x 165.2mm (including mounting holes).
InfinityBox 2 Cell Starter Kits
This kit contains the following:
- 1 x MASTERCELL™ Input Unit with inSight Diagnostic module.
- 1 x POWERCELL™ Control Unit.
- 2 x Input harnesses to connect switch inputs to MASTERCELL™.
- Cabling, connectors, fuses & holders to supply power to the POWERCELL™.
- Output harnesses to connect vehicle accessories to the POWERCELL™.
- Can Bus cabling to connect the MASTERCELL™ to the POWERCELL™.
- Minifuses for protecting each POWERCELL™ output circuit.

InfinityBox 3 Cell Starter Kits
This kit contains the following:
- 1 x MASTERCELL™ Input Unit with inSight Diagnostic module.
- 2 x POWERCELL™ Control Units.
- 2 x Input harnesses to connect switch inputs to MASTERCELL™.
- Cabling, connectors, fuses & holders to supply power to each POWERCELL™.
- Output harnesses to connect vehicle accessories to each POWERCELL™.
- Can Bus cabling to connect the MASTERCELL™ to each POWERCELL™.
- Minifuses for protecting each POWERCELL™ output circuit.

### Part Numbers and Descriptions

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<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>750002K</td>
<td>2 Cell Starter Kit</td>
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<tr>
<td>750003K</td>
<td>3 Cell Starter Kit</td>
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<tr>
<td>852012</td>
<td>PowerCell™ Controller</td>
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<td>852016K</td>
<td>inLink™ RF Control Module</td>
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<td>858019</td>
<td>inDash™ Dashboard Wiring Harness</td>
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<td>600001</td>
<td>inCode™ Programming Unit</td>
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<td>852871</td>
<td>inTouch NET™ Controller</td>
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<td>inDash MAX Controller</td>
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<td>inLighten™ LED Controller</td>
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<td>852600</td>
<td>inVert™ Switched Trigger Connector</td>
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<tr>
<td>600100K</td>
<td>inReserve™ Battery Monitoring Kit</td>
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<td>MEG060</td>
<td>Megafuse 60A (Further details refer page 30)</td>
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<tr>
<td>MINxxx</td>
<td>Minifuse xxx =Amp (Further details refer page 20)</td>
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### J1939 COMMERCIAL POWER CONTROL UNITS

**NEW**

InfinityBox have released two new power control units that can be controlled by any J1939 input device eg. switch panels, touch screens etc. These control units do not require the InfinityBox MASTERCELL™ control unit and can be added to a new or existing J1939 network. You can mix up to six of these J1939 power control units within a single J1939 network.

#### J1939 POWERCELL™ Control Unit
- Connect any J1939 input device.
- 10 MOSFET switched outputs.
- 25A rating per output.
- 6 Cells can be installed on 1 network.
- Assign different switching behaviours.

#### J1939 inMotion™ Motor Controller
- Connect any J1939 input device.
- 5x H-bridge pairs for polarity reversing.
- 20A current per pair.
- Internal current sensors monitor output.
- Integrated fuse protection.

### Part Numbers and Descriptions

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<tr>
<td>852012J</td>
<td>J1939 PowerCell™ Control Unit</td>
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<tr>
<td>852032J</td>
<td>J1939 inMotion™ Motor Control Unit</td>
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**Note:** These power controllers do NOT connect to the InfinityBox MASTERCELL™ control unit.