

AAI Training Session

General Product Overview **Part 1**

Presented by Andy Reid

Acronyms

- ASC - Automatic Split Charge
- ABP - Auxiliary Battery Protect
- ESP - Engine Start Protect
- DDP - Deep Discharge Protection
- LVP - Low Voltage Protection
- BSD - Battery Sense Disabled
- AST - Assured Start/Assisted Start
- ASM - Auxiliary System Manager
- VA - Virtual Alternator
- ASC+*i* – ASC Integrated

Creation & Storage

- Gensets
- Dynawatt
- Dynagen
- Fuel Cells
- Power Inlets
- Batteries

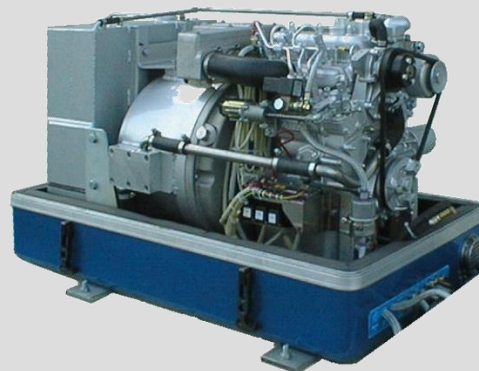
Fisher Panda Generators

Available in three layouts

PVK-U



PVMV-N



PVK-UK



Fisher Panda Generators

- **Engine** – high speed diesel generator (no petrol!)
- **Generation** – AC and DC, 4kW – 60kW
- **Fuel feed** – utilises existing vehicle fuel tank
- **Water cooled** – engine, alternator & exhaust ensures efficient heat removal
- **Quiet operation** – silenced components ensure low noise levels

Dynawatt



- **Batteries not required** – belt driven inverter system that provides mains power from the vehicle engine
- **Generator** – similar to a standard vehicle alternator and output of approximately 250VAC
- **Control unit** – modifies the generators output to provide a steady 230 or 110VAC output at 50Hz
- **Installation** – generator requires specialist installation as design of the brackets is fundamental to the system

Dynagen

- **High power** – gearbox driven AC generator, available from 6.6kVA to 15kVA
- **Specialist PTO Pump** – used to produce a regulated hydraulic flow to the generator
- **Generator** – driven by hydraulic feed produces a 110V or 230V AC output at 50Hz
- **Constant power** – system commonly used on fire appliances where engine speed is continuously fluctuating

Fuel Cells



- **Technological** – rapidly advancing technology currently being introduced to the market place
- **Direct Methanol Fuel Cells** – power provided by running methanol through the fuel cell stack
- **Outputs** – electrical power and heat
- **Automatic** - fuel cells can provide low power levels over a very long unattended period of time

AC & DC Power Inlets



- **Standby charging** – used on a range of fleet vehicles to provide a simple means of opportunity charging
- **User feedback** – allows for charger status information to be displayed to the user
- **Crank inhibit** – built-in sensor provides the means to implement drive-away protection
- **Competition not even close!**
- **Upgrades** – higher IP ratings when in use, outlets, and battery SOC indication

Batteries



- **VRLA batteries** – 3 types; Gel/AGM/Cranking AGM
- **Cyclic Duty** – our gel and AGM batteries are designed to be cycled
- **Advancing technologies** – As our customer base is expanding we are now seeing more requirements for other technologies
- **Specification** – batteries should be specified correctly to suit the system, this is fundamental in system design.

Conversion and Management

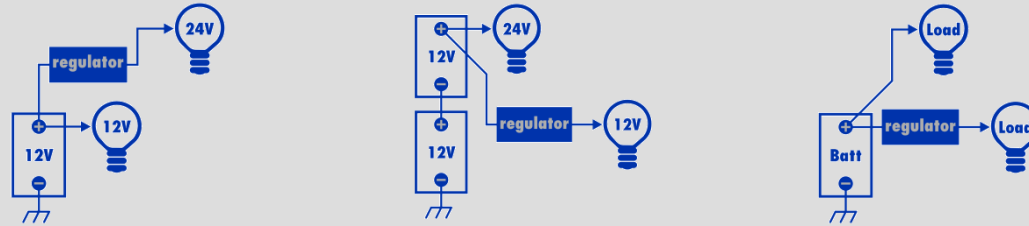
- μ Active DCDC Conversion
- Virtual Alternator
- Universal Power Chargers
- Aux 12 Charger Modules
- CSR Inverters
- Combis
- Blue Solutions
- Transfer Switches
- Auto Split Charge (ASC)
- ASC+ & ASC+i
- SuperNode
- Battery Monitors
- Interface Expander Modules

μ Active – DCDC Conversion

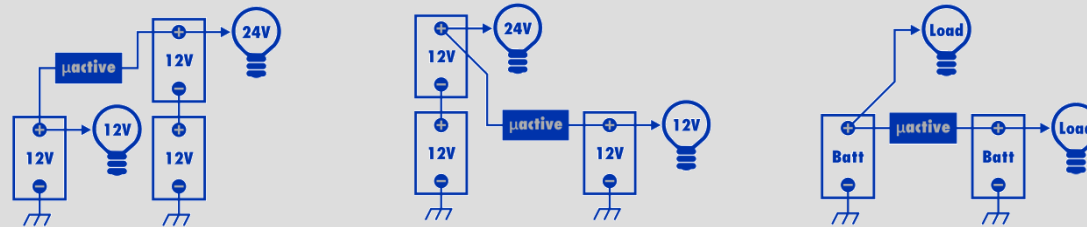
- **Fully software controlled** – a modern upgrade to our DCDC range
- **Configuration** – 1 unit is programmable to cover all eventualities
- **Dual channel** – multiple functions or a single high-power output
- **Expandability** – use in conjunction with ASC+*i* derived products to create enhanced power management systems

μActive – DCDC Conversion

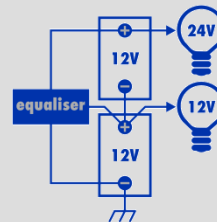
- **DC Regulator** – multiple voltages without multiple batteries



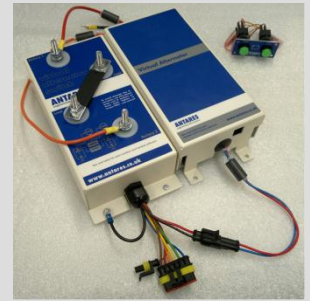
- **Active Line Charger** - charging of auxiliary batteries from a different voltage source



- **DC Equalizer** – balance batteries in centre-tap situations



μ Active – Virtual Alternator



- **Fully automatic** – complex software control ensures aux. batteries receive charge from the most appropriate source
- **Antares regime** – fully temperature compensated charging regime designed for VRLA batteries
- **High current pass through** – should sufficient power be available from the alternator VA switch can pass through 190A to the aux. batteries
- **Expandability** – 1 VA can charge upto 2 aux. battery banks and can be paralleled with a further VA switch

Universal Power Chargers



- **Universal input** – operates with a wide input voltage range, 90V to 255V AC
- **Software controlled** - chargers provide a multi-stage charging regimes specific to Antares requirements
- **Flexibility** – we can program the units to suit a wide range of applications
- **Opportunity charging** - UPC range is much more suitable than many other chargers.

Aux 12 Charger



- **Low-power 12V charger** – for small 12V batteries on 24V systems
- **Extension to UPC range** – automatically turns on with a 24V charging voltage and turns off automatically
- **No other device on the market**
- **Used on many fire appliances** – light duty portable pumps etc.



Question or Comments?

AAI Training Session

General Product Overview Part 2

Presented by Andy Reid

Conversion and Management

- μ Active DCDC Conversion ✓
- Virtual Alternator ✓
- Universal Power Chargers ✓
- Aux 12 Charger Modules ✓
- CSR Inverters
- Combis
- Blue Solutions
- Transfer Switches
- Auto Split Charge (ASC)
- ASC+ & ASC+i
- SuperNode
- Battery Monitors
- Interface Expander Modules

Compact Sine Range Inverters



- **Power** – units range between 200W and 3kW
- **Pure sine wave** - less than 3% THD (total harmonic distortion), 50/60Hz
- **Applications** – used in a variety of applications from ambulances to refrigeration vehicles
- **Expandable** – using our Interface Expander Modules widely increase functionality

Combi Inverter/Chargers



- **Combi** - a combination of an inverter and charger built into a single unit.
- **I/O** - The units have a mains input and output as well as a DC dual input/output
- **Pass through** - When connected to mains the unit will feed both the mains output as well as charging the battery.
- **Compact** - These units are suited to applications where space is at a premium

Blue Solutions Products



- **Victron** – well known for robust power products
- **Blue Solutions** – focuses on the incorporation of MultiPlus and Quattro inverter/chargers
- **Power Assist** – allows for the inverter/chargers work in parallel with other mains sources.
- **Prioritization** – load shedding is also built into the inverter/chargers to maintain power to essential loads

Automatic Transfer Switches



- **Seamless switching** – automatic prioritization of inputs and outputs to sustain the primary loads
- **No user intervention** - prevents the need to manually switch items on. i.e. overnight charging
- **Fault detection** – neon's illuminate when AC is present

Automatic Split Charge

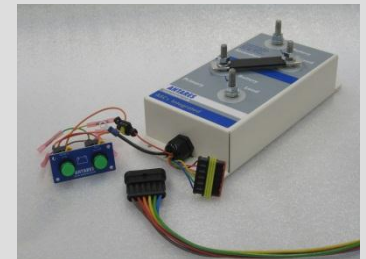


- **Auto-disconnect** - protects vehicle battery from auxiliary loads
- **Connects batteries together** - for charging of auxiliary battery banks
- **Compact and Rugged** - used widely in small commercial vehicles with a need for aux. batteries
- **Minimises vehicle down-time** - reduce the risk and cost of vehicle failure due to flat batteries

ASC+/ASM Range



- **Fully software controlled** – additional features available to suit variety of applications
- **Multiple battery banks** – create and manage complex battery bank solutions
- **Critical applications** - used in demanding applications where power management and reliability is key *i.e. Emergency Services*
- **Assured Start** – reduce recovery costs



SuperNode



- **SuperNode** – task management system running over a CanBus network
- **I/O** – various inputs and outputs are switched and controlled by the internal multiplexing.
- **Modular** - complete SuperNode systems consist of various nodes connected to the CanBus
- **Digital & Analogue** – primarily a digital system, however has the capability to incorporate analogue inputs and outputs

Battery Gauges



- **Monitoring** – battery gauges allow for advanced system monitoring and status indications.
- **Measurements** – The gauges measure the current in and out of a battery bank via a current shunt and calculate battery status.
- **Communication** – allows live monitoring and logging of data
- **Integration** - used within complete systems allows for accurate control of various other hardware

Interface Expander Modules



- **Expand functionality** – expander modules is the term given to our devices that add functionality to our products
- **External control** – add advanced control technique to standard product
- **Competitive edge** – defines us
- An example of this is the Inverter on/off control module that allows control of the inverter from an external source such as the vehicle ignition.



Question or Comments?