

# VALEN ModX4

Pre Engineered  
Modular Solar System



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# A company built on its Core Values.

## The story so far.

Regal Electro was first founded in 1981 in Cape Town, South Africa, supplying mostly security components and batteries to security installers. In 1998, the business was sold and the Managing Director, Philip Daries, immigrated to Australia. The year 1999 saw the opening of the newly renamed Regal Electro, a battery and security component supplier based in Lake Cargelligo, NSW.

Over the next few years, it became apparent that there was a growing need in the industry for a battery supplier who knew not only the characteristics of various technologies but also understood the technical manufacturing procedures to ensure a quality product.

The growing team at Regal Electro worked to position the company as a premium supplier of fine energy solutions, offering a complete packaged solution to a wide range of clients.

In 2009, Regal Electro opened its very own custom-built premises in Hallam, VIC to ensure fast service and delivery to its clients. 2010 saw the establishment of a presence in New Zealand.

To keep up with ever-increasing growth, the Lake Cargelligo Head Office moved into a brand new purpose-built facility in 2012.

In 2015, Regal Electro successfully completed its first ENLIFEN Energy Storage Optimiser (ESO) prototype which was put proudly on display at the Comms Connect Exhibition in Melbourne.

In 2017, Regal Electro went through another major change with the rebranding and reinvigorating of its core product range, Power Charge. The Power Charge range was renamed Valen, which in Latin means 'Power'. Brisbane operations also began at this time.

A Sydney head office and logistics centre was opened in Lawson in April 2018 with the view to further improve the level of service offered to clients.

In July 2018, Regal Electro made the key strategic decision to go through another rebranding and changed the company name to Valen. This decision was made to strengthen the brand and recognition within the industrial battery market.

As of today, Valen has grown exponentially since its humble beginnings to become a trusted advisor to clients throughout Australia and New Zealand. Valen is an industry leader in energy storage for mission-critical applications and continues to innovate and evolve, keeping abreast of new technologies as they emerge.



### Wow Customers through Service

- Our customers want service and we want our employees to go above and beyond for our customers.
- We expect our employees to deliver a WOW experience with customers.



### Move Fast & Remain Focused to Get Results

- We are serious about results and we must never lose focus on our goals and our sense of urgency to achieve.
- Do something once and do it right.
- We believe in working hard and putting in extra effort to get things done.



### Upbeat Positive Attitude

- If our employees have a positive attitude and constantly strive to give your best effort, eventually we will overcome our immediate problems and find you are ready for greater challenges.
- Positive and negative are directions that lead to different outcomes. We expect our employees to move in the right direction each day.



### Challenge the Status Quo

- We are committed to great results and good is the enemy of great. We want our employees to embrace & drive change



### Play as a Team

- Working effectively as a team creates momentum, improves morale.
- The difference between success and failure is a great team and we expect our employees to work together as a team.



# Introducing Valen ModX

*Valen ModX is the brainchild of accumulated years of experience supporting clients with their remote power requirements. As the world continues to evolve into the AI space, power in remote locations is becoming increasingly essential.*

Valen ModX is designed utilising a tried and tested range of Valen core products, allowing the ModX to perform in perfect synchronisation. Valen EnduroGel battery system, Valen Industrial Field Cabinets, Valen Solar Panels and Victron MPPT Solar Controllers all come standard, with optional extras able to be added to retrofit to your project requirements.

ModX is modular, maintenance-free and easy to install and operate making it an ideal solution for the remote high-temperature regions of Australia.

## Advantages of ModX

- Australian made and engineered means product support and spares readily available
  - All components under 1 tonne for easy transportation
  - Quick installation as no ground penetration required on ModX4 and ModX6
- Portable system structure available as an option for sites with changing requirements
  - Modular systems meaning they can be expanded as the need arises
  - Solar panels are able to be installed at ground level minimising the need for WHS equipment

## Optional Extras

Customise your system to your site. Valen ModX optional extras allow you to ensure your system is ready to go for challenging site locations.

- **DC Generator (3.5kW suggested) with External Fuel Tank**
  - **Wind Turbine 24/48V 220W**
  - **Larger Industrial Field Enclosures**
  - **Upgrade to Cyclonic Wind Rating**
  - **Precast Concrete Pads**
  - **DC-DC Converter**
- **Inverter**
  - **External IP Boards**
  - **Upgrade to Lithium Batteries**
  - **Remote monitoring for easy tracking of multiple remote sites**

# ModX4

## Electrical Capabilities

- The Valen ModX4 has been designed to suit the following loads at 48VDC.
- A 50% depth of discharge has been selected to match the Valen ENDURO-GEL 12V 155Ah Batteries with the Catalyst Life Extender.
- The solar design has been calculated on 4hrs peak sun with the solar panels installed on a 30degree angle facing north.

ModX4 Features;

- 1200W Solar
- 48V 310Ah

		Duty Cycle			
		100%	75%	50%	25%
Days Autonomy	2 Days	155W	206W	310W	620W
	3 days	103W	137W	206W	413W
	5 days	62W	82W	124W	248W
	7 Days	44W	59W	88W	177W

## Overall ModX4 Physical Specification

Length	4080.00mm
Width	1645.00mm
Height	2538.51mm
Steel Hot Dipped Galvanised Solar Frame	
Rating	Wind Region: C Terrain Catagory: 2 Altitude: 25m Distance from Coast: <5km Annual Probability of Exceedance: 1:200

## Enclosure - Standard

Sizing	1375 x 750 x 620
IP Rating	IP55
Number of RU	24RU
Colour	Standard T33 Smoke Blue - Customisation on request
Field Enclosure Seals	High-quality polyurethane foamed in place (FIP) full perimeter door seals
Gland Plate	3mm aluminium split gland plates
Wiring	The cabinet will come pre wired
Shelving	The cabinet includes 2 battery shelves

# Pricing

## Batteries - Standard

Quantity	8
Technology	Valen EnduroGel 12V155Ah
Nominal Voltage	12V
Nominal Capacity C10 Rate	155Ah

## Solar Controller

Battery Voltage Range	48VDC
Max. Output Current	45A @ 40°C with adjustable current limit
Operating Temperature Range	-40°C to +60°C
Dimensions	185(H) x 250(W) x 95(D)
Weight	3kg

## Solar Panels - Standard

Quantity	4
Output per Panel	300W
Open Circuit Voltage	39.8V
Nominal Voltage	24V
Size per Panel	1650(L) x 992(W) x 35(H)
Type	Polycrystalline

## DC Distribution

Solar Input	2x Inputs with 15A circuit breakers
2 Loads	2x Load outputs with 10A circuit breakers
Battery Bank	2x Battery outputs with 25A circuit breakers

Proposal for the Valen ModX4, an engineered and certified Modular Solar System.

The Valen ModX4 is a pre-engineered solar system. It consists of compatible quality components such as Batteries, Solar Panels, Solar Controller, Enclosure and Solar Frame.

Included in the ModX4 system is the following equipment;

- 1 x Solar Frame to suit 4 x 300W Panels
- 1200 Watts of Solar
- 1 x Outdoor Enclosure 1375 x 750 x 620mm
- 48V 310Ah of Battery Capacity
- 1 x 45amp Solar Regulator with Venus GX Remote communication
- 1 x DC Distribution Panel

**\$POA**

## Optional Extras

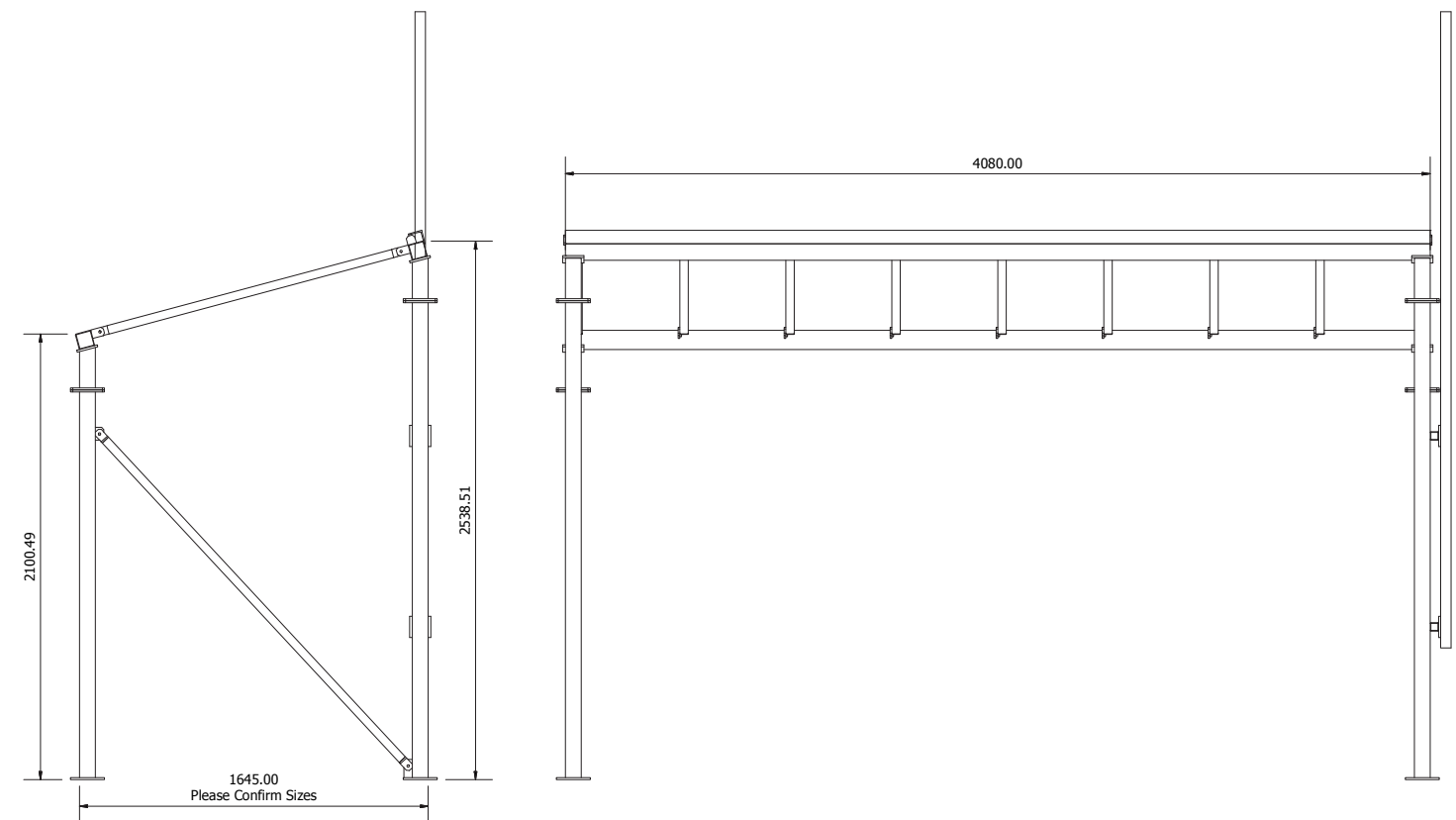
Optional Pre Cast Concrete Footings	POA
Upgrade to Lithium	POA
Larger Enclosure	POA
DC Generator	POA
Wind Turbine 24/48V 220W	POA
DC-DC Converter	POA
Inverter	POA
External IP Boards	POA

\*All pricing excludes GST



# STANDARD PRODUCT SPECIFICATIONS

# ENGINEERED SOLAR FRAME DRAWING



<b>Length</b>	4080.00mm
<b>Width</b>	1645.00mm
<b>Height</b>	2538.51mm
<b>Steel Hot Dipped Galvanised Solar Frame</b>	
<b>Rating</b>	Wind Region: C Terrain Catagory: 2 Altitude: 25m Distance from Coast: <5km Annual Probability of Exceedance: 1:200

# Field Cabinets



Product Code	Enclosure Size (mm)			Colour	No. of U (RU)
	H	W	D		
STANDARD SIZE					
FC IP 1375x750x620	1375	750	620	T33 Smoke Blue	24RU
OPTIONAL SIZES					
FC IP 1375x750x800	1375	750	800	T33 Smoke Blue	24RU
FC IP 1675x750x620	1675	750	620	T33 Smoke Blue	30RU
FC IP 1675x750x800	1675	750	800	T33 Smoke Blue	30RU
FC IP 1975x750x620	1975	750	620	T33 Smoke Blue	36RU
FC IP 1975x750x800	1975	750	800	T33 Smoke Blue	36RU
FC IP 2275x750x620	2275	750	620	T33 Smoke Blue	42RU
FC IP 2275x750x800	2275	750	800	T33 Smoke Blue	42RU

## Features

### Protection

Valen's field cabinets comply with IP66 IK10, NEMA 4 (excluding cutouts for fans/filters, vent hoods, covering fan/filter cutouts IP65) as well as standards IEC62208, IEC/EN/AS60529, IEA-310-D

### Field Cabinet Body

The robust monoblock body is fabricated using 2.0mm galvanised steel sheet. The body is fitted with rain hood/sunshield, plinth, vent hoods and 4x lifting eye bolts. Flat face sealing surfaces are provided to increase seal life. A 3.0mm galvanised steel split gland plate is also incorporated into the bottom face. Four cutouts 125mm x 125mm are supplied to house fans and filters, and each are covered with removable vent hoods. Precision automated manufacturing equipment ensures accuracy and consistent high-quality (fans and filters ordered separately)

### Field Cabinet Doors

The front and rear doors are fabricated using 2.0mm galvanised steel sheet and are designed to provide flush recessed mounting to prevent vandalism and unauthorised access. The doors incorporate concealed removable hinges with captive pins and designed for a 110° opening and are provided with heavy-duty door stays

### 19" Data Rack Rails

Front and rear 19" data rack rails fabricated from 1.5mm galvanised steel sheet

### Field Cabinet Seals

High-quality Polyurethane foamed in place (FIP) full perimeter door seals provide excellent sealing over a long life

### Field Cabinet Locks

Each door includes a 3 point locking system with key-lock swing handle. A full range of locking solutions are available upon request

### Gland Plate

3mm aluminium split gland plates incorporated into the bottom of the enclosure for cable management

### Surface Treatment

UL approved epoxy-polyester powder-coated with a smooth finish; 80-120 micron average thickness

### Colour

The standard field cabinet colour is T33 Smoke Blue. A full range of other colour options are available upon request

## Accessories

### Field cabinet accessories available include:

- Shelf to suit Field Cabinet (White)
- Heavy Duty Shelf to suit 750W X 800D (250kg max. load)
- Laptop Drawer to suit Field Cabinet (White)
- Device Plate to suite 1375H X 620D Field Cabinet

Other accessories are available upon request, contact us on the details below to discuss your next project.



### Valen Solar Panel 300W

- Valen Solar Panels are designed for industrial applications and cater for a wide range of stand-alone power projects.
- High-quality, customisation and complete system integration, with the full range of Valen products, have meant the Valen Solar Panels have fast become the solar panel of choice for critical solar applications.
- Delivering reliable performance over time with world-class manufacturing of MONO PERC Crystalline, providing a fine blend of high performance and robust design.
- A dust-free manufacturing environment coupled with stringent quality control and integrity in the manufacturing process provides long life and enhanced cell performance.
- Having years of experience with the Valen Solar Panels has enabled Valen to offer a 25-year output warranty. Manufactured to Valen's stringent quality standards, the Valen Solar Panels have and will continue, to deliver peace of mind for remote and stand-alone solar applications.



# 12 EGFT 155 BATTERY SPECIFICATIONS



### Electrical Characteristics: Standard Test

Maximum Power - Pmax	300W
Power Tolerance	0/+5%
Open Circuit Voltage - Voc	37V
Short Circuit Current - Isc	9.6A
Optimum Operating Voltage - Vmp	31V
Optimum Operating Current - Imp	9.31A
Module Efficiency	20.3%

Standard test: Irradiance 1000W/m<sup>2</sup>; AM 1.5; cell temperature 25°C

### Electrical Characteristics: Nominal Operating Cell Temperature

Maximum Power at NMOT(Pmax)	278.2W
Short Circuit Current - Isc	9.17A
Open Circuit Voltage - Voc	38.7V
Optimum Operating Voltage - Vmp	32.0V
Optimum Operating Current - Imp	8.69A

Nominal operating cell temperature test: irradiance 28.4 800W/m<sup>2</sup>; wind speed 1m/s; cell temperature 45°C; ambient temperature 20°C

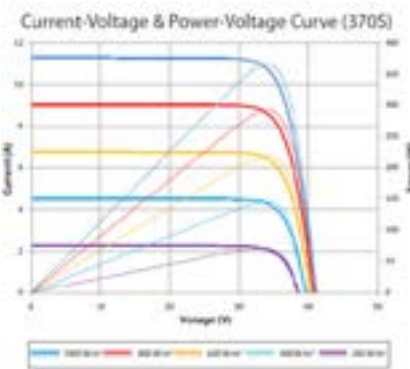
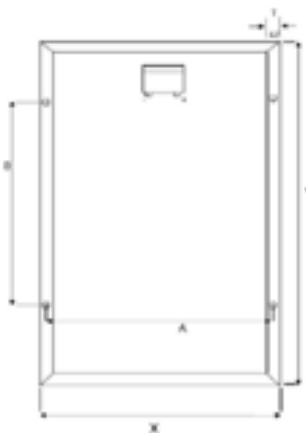
### Temperature Characteristics

Nominal Module Operating Temperature (NMOT)	42 ± 2°C
Temperature Coefficient of Pmax	-0.36%/°C
Temperature Coefficient of Voc	-0.304%/°C
Temperature Coefficient of Isc	0.050%/°C

### Maximum Ratings

Maximum System Voltage	1500 V DC (IEC)
Series Fuse Rating	20A

## VALEN 300W SOLAR PANEL



### Mechanical Characteristics

Dimensions	1640(L) x 990(W) x 35(H)
Weight	21kg
Frame	Anodised aluminium alloy
Front Glass	3.2 mm (0.13 inches) tempered glass
Cells	MONO PERC Crystalline, 157 x 157mm±0.5mm.
Junction Box	IP68 rated (3 bypass diodes)
Cable	4.0 mm2
Connector	MC4 EV02, Cable 01S

### System Design

Temperature Range	-40°C to +85°C
Hail	Maximum diameter of 25mm with impact speed of 23m/s
Maximum Capacity	Snow 5400 Pa, wind 2400 Pa
Application Class	A
Safety Class	II

### Dimensions



### Specifications

Nominals Voltage	12V
Number of Cells	6
Design life	15 years
Normal Capacity 25°	
10 Hr rate (10.5V)	156Ah
5 Hr rate (10.5V)	135.5Ah
Dimensions	550(L) x 110(W) x 288(H)mm
Weight	46.5kg
Terminal	M8
Torque Setting	10.8 Nm
Charge voltage	Cycle: 14.1 - 14.4V at 25°C Float: 13.5 - 13.8V at 25°C
Internal resistance	5.2mΩ 25°C - Fully charged Battery
Electrolyte	Thixotropic Gel - Sulphuric acid
Operating Temperature	-20°C to +60°C

#### Discharge Constant Current (Amperes at 25°C)

End Point Volts / Cell	15 min	30 min	1 hour	3 hour	5 hour	10 hour	20 hour
1.75V	228	141	90.4	55	38.8	15.6	8.19

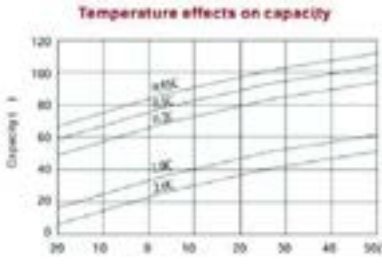
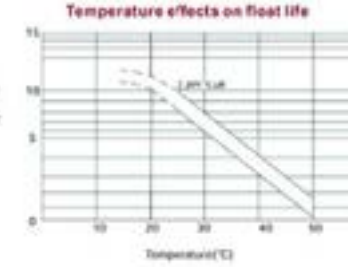
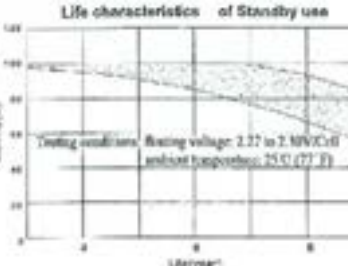
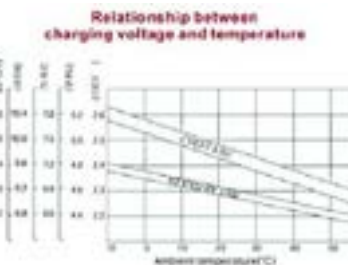
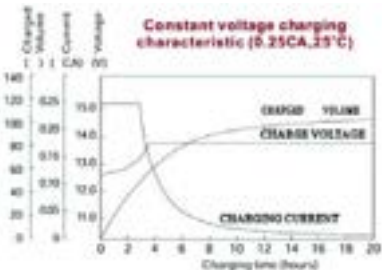
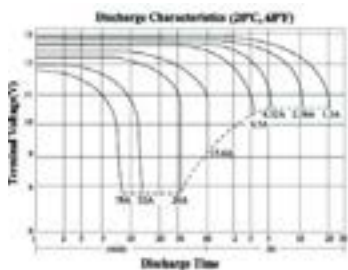
#### Discharge Constant Power (Watts at 25°C)

End Point Volts / Cell	15 min	30 min	1 hour	3 hour	5 hour	10 hour	20 hour
1.75V	2499	1580	1031	456	321	186	98.3

(However it is recommended that the batteries be operated in the temperature range of 20 to 30°C to obtain full life and optimum performance.)

Specifications subject to change without notice.

## ENDUROGEL 12V155Ah



# SRA VSS15045



## Victron SmartSolar MPPT Controller 45A 150V

A solar charger gathers energy from your solar panels, and stores it in your batteries. Using the latest, fastest technology, SmartSolar maximises this energy harvest, driving it intelligently to achieve full charge in the shortest possible time. SmartSolar maintains battery health, extending its life. The SmartSolar charge controller will even recharge a severely depleted battery. It can operate with a battery voltage as low as 0 Volts, provided the cells are not permanently sulphated or otherwise damaged.



# BA VVGX

## Victron Venus GX Remote Monitoring

The Venus GX provides intuitive control and monitoring for all Victron power systems.

The list of Victron products that can be connected is endless: Inverters, Multis, Quattros, MPPT solar chargers, BMV battery monitors, Lynx Ion + Shunt and more.

## Specifications



SmartSolar Charge Controller	150/45	150/60	150/75
Battery voltage	12 / 24 / 48V Auto Select (software tool needed to select 36V)		
Rated charge current	45A	60A	75A
Nominal PV power, 12V 1s.b)	650W	860W	1000W
Nominal PV power, 24V 1s.b)	1300W	1720W	2000W
Nominal PV power, 36V 1s.b)	1950W	2580W	3000W
Nominal PV power, 48V 1s.b)	2600W	3440W	4000W
Max. PV short circuit current 2)	50A (max 30A per MC4 conn.)		
Maximum PV open-circuit voltage	150V absolute maximum coldest conditions 145V start-up and operating maximum		
Maximum efficiency	98%		
Self-consumption	Less than 35mA @ 12V / 20mA @ 48V		
Charge voltage 'absorption'	Default setting: 14.4 / 28.8 / 43.2 / 57.6V (adjustable with rotary switch, display, VE.Direct or Bluetooth)		
Charge voltage 'float'	Default setting: 13.8 / 27.6 / 41.4 / 53.2V (adjustable: rotary switch, display, VE.Direct or Bluetooth)		
Charge voltage 'equalization'	Default setting: 16.2V / 32.4V / 48.6V / 64.8V (adjustable)		
Charge algorithm	multi-stage adaptive (eight pre-programmed algorithms) or user defined algorithm		
Temperature compensation	-16 mV / -32 mV / -64 mV / °C		
Protection	PV reverse polarity / Output short circuit / Over temperature		
Operating temperature	-30 to +60°C (full rated output up to 40°C)		
Humidity	95%, non-condensing		
Maximum altitude	5000m (full rated output up to 2000m)		
Environmental condition	Indoor, unconditioned		
Pollution degree	PD3		
Data communication port	VE.Direct or Bluetooth		
Remote on/off	Yes (2 pole connector)		
Programmable relay	DPST AC rating: 240VAC / 4A DC rating: 4A up to 35VDC, 1A up to 60VDC		
Parallel operation	Yes: up to 10 units can be synchronized with Bluetooth		
ENCLOSURE			
Colour	Blue (RAL 5012)		
PV terminals 3)	35 mm <sup>2</sup> / AWG2 (Tr models) Two pairs of MC4 connectors (MC4 models)		
Battery terminals	35mm <sup>2</sup> / AWG2		
Protection category	IP43 (electronic components), IP22 (connection area)		
Weight	3 kg		
Dimensions (h x w x d)	Tr models: 185 x 250 x 95 mm MC4 models: 215 x 250 x 95 mm		
STANDARDS			
Safety	EN/IEC 62109-1, UL 1741, CSA C22.2		
1a) If more PV power is connected, the controller will limit input power. 1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V. 2) A PV array with a higher short circuit current may damage the controller. 3) MC4 models: several splitter pairs may be needed to parallel the strings of solar panels. Maximum current per MC4 connector: 30A (the MC4 connectors are parallel connected to one MPPT tracker)			



## Specifications

Venus GX			
Power supply voltage range	8 – 70V DC		
Current Draw	210 mA @ 12V	110 mA @ 24V	60 mA @ 48V
Communication ports			
VEDirect	2 separate VEDirect ports – isolated		
VE.Can	2 paralleled RJ45 sockets – isolated		
CAN	2 <sup>nd</sup> CAN interface – non isolated		
VE.Bus	2 paralleled RJ45 sockets – isolated		
USB	2 USB Host ports – not isolated		
Ethernet	10/100/1000MB RJ45 socket – isolated except shield		
WiFi Access Point	Use to connect to Remote Console		
WiFi Client	Connect the Venus GX to an existing WiFi network		
IO			
Potential free contact	NO/COM/NC – 6 A 250 VAC/30 VDC		
Tank level inputs	3 x Configurable for European (0 - 180 Ohm) or US (240 - 30 Ohm)		
Temperature level inputs	2 x Requires ASS000001000.		
3rd party interfacing			
Modbus-TCP	Use Modbus-TCP to monitor and control all products connected to the Venus GX		
JSON	Use the VRM JSON API to retrieve data from the <a href="#">VRM Portal</a>		
Other			
Outer dimensions (h x w x d)	45 x 143 x 96		
Operating temperature range	-20 to +50°C		
Standards			
Safety	EN 60950-1:2005+A1:2009+A2:2013		
EMC	EN 61000-6-3, EN 55014-1, EN 61000-6-2, EN 61000-6-1, EN 55014-2		
Automotive	In progress		



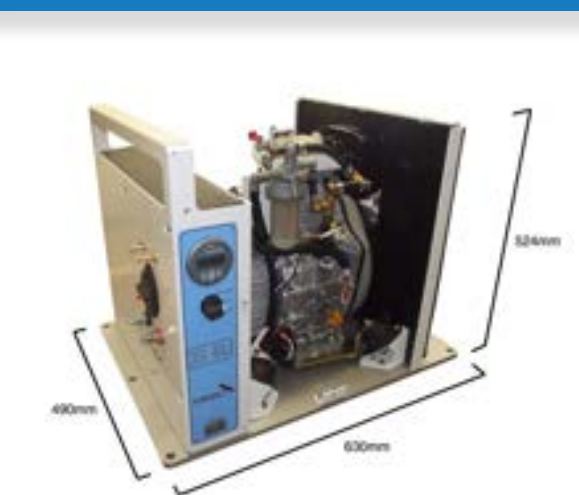
# OPTIONAL EXTRAS

## POWERMAKER DC DIESEL GENERATOR 3.5KW 24/48V

### PowerMaker Outback 3.5 (DC) Generator

PowerMaker Outback 3.5 is a compact direct current (DC) generator set that is designed to work with a storage battery bank.

Compact, quiet and virtually unbreakable, PowerMaker Outback is built tough for any environment or application. It is ideal for hybrid power plants, solar power backup, and telecommunications. The PowerMaker Outback DC diesel generator has remarkable fuel economy with using 20% less fuel than any other conventional engine and uses 40% less fuel to charge your batteries.



<b>Portable</b>	Yes
<b>Operation</b>	Automatic
<b>Power</b>	3.5kW @ 28V
<b>Voltage</b>	24/48V DC
<b>Fuel</b>	Diesel
<b>Dimensions (mm)</b>	630(L) x 490(W) x 524(H)
<b>Weight</b>	95kg

### Features

- Quiet and compact
- Remarkable fuel economy
- Variable engine speed
- Powdercoated aluminium enclosure
- Direct-drive alternator
- Charges any battery type
- Robust design
- Easy maintenance
- 2-year limited warranty

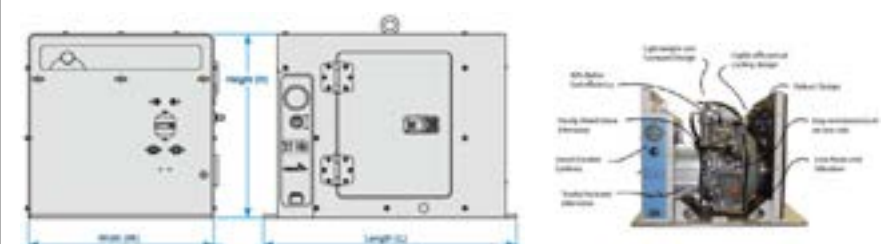
Ideal for:

- Hybrid power plants
- Solar power backup
- Telecommunications

### Specifications

POWERMAKER Outback	Outback 2.8	Outback 2.8	Outback 3.5
Model	Outback 2.8	Outback 2.8	Outback 3.5
Output power - Continuous*	2.8kW @ 14.0V DC	2.8kW @ 28.0V DC	3.5kW @ 28.0V DC
Rated output voltage	14V DC	28V DC (48V optional)	28V DC (48V optional)
Maximum battery charging current*	140A	140A	175A
Bulk charge current	Up to 140A	Up to 140A	Up to 175A
Absorption charge voltage	Up to 14.0V programmable	Up to 28.0V programmable	Up to 28.0V programmable
Battery charging voltage	Two steps, constant current, constant voltage		
Engine			
Engine manufacturer	Yanmar 1.40L	Yanmar 1.40L	Yanmar 1.70L
Engine type	Direct, naturally aspirated, direct injection, industrial		
Engine displacement	1.40L	1.40L	1.70L
Number of cylinders	4		
Operating speed - RPM	2000 to 2400 automatic variable	2000 to 2400 automatic variable	2000 to 2400 automatic variable
Cooling method	Air cooled with engine fan		
Fuel type	Automotive diesel		
Fuel consumption	Full load - 0.8 litres/hour	Full load - 0.8 litres/hour	Full load - 1.2 litres/hour
Fuel oil pump	Carburettor		
Maximum fuel suction capability	1.5 metres vertical		
Shifting	12V	24V (12V optional)	24V (12V optional)
Engine oil type	SAE 15W/40 or equivalent from -10°C to 40°C		
Engine oil capacity	0.8 litres	0.8 litres	1.4 litres
Maximum angle of continuous operation	70°		
Crash case of enclosure	Crash value		
Service intervals	150 hours (250 hours optional)		
Alternator			
Alternator manufacturer	Frequency SP2 S	Frequency SP2 S	Frequency SP2 S
Alternator type	Permanent magnet, brushless, with bearingless rotor		
Enclosure	Totally enclosed		
Windings	Three-phase star connected		
Voltage control	Variable engine speed		
Voltage control accuracy	Within +/- 2%		
Rectifier type	Full wave dual bridge		
Alternator to engine coupling	Direct drive		
Enclosure type	Noise reducing, fully enclosed, with front access door in powder coated aluminium with integrated multi-chamber exhaust silencer		
Noise emission @ full power	66 dBA @ 7 metres		
Vibration function	High vibration level at 40° for maximum protection		
Control type	OSP based with engine protection		
Dimensions - L x W x H in mm	630 x 490 x 420	630 x 490 x 420	630 x 490 x 524
Weight	70kg	70kg	95kg
Normal operating temperature range	-10°C to +40°C		
Derating for temperature above 27°C	2% for every 10°C above 27°C		
Normal operating altitude	Sea level to 3000m		
Derating for altitude	1.2% for every 100m above sea level		

\* @ 25°C, 750mmHg, 90% relative humidity  
These specifications are subject to change without notice.



Specifications subject to change without notice.



## Wind Turbine

The lightweight and powerful wind turbine has been developed in direct consultation with leading wind energy experts and off-grid customers. Seamlessly integrated with existing infrastructure, they enable the transition from diesel power generation to cheaper, more independent, safe and environmentally friendly wind power, overnight.

This wind turbine is designed in Australia for the toughest off-grid conditions.



### Features

- Precision engineered carbon fibre composite blades
- Breakthrough diffuser technology maximises the wind resource
- Marketing leading 220W output
- Quiet and powerful
- Plug and Play integration with 24 and 48VDC systems
- Ideal for telecommunications, mining and utility markets

### Specifications

Rated Power	220W
Rated Wind Speed	11m/s (40km/h)
Peak Power	1000W (17m/s)
Total Diameter	920mm
Output Voltage	24V/48V
Mass	18.5kg
UV Protection	20-years
Yaw	Passive Yaw System

## Energy Storage Optimiser Module

The ENLiFEN ESO is a top of the range customised Lithium battery storage, designed, engineered and manufactured in Australia and to Australian Standards. This gives the ESO the extra flexibility that is required to retrofit mission-critical systems.

Years of experience with Valen ENLiFEN Lithium cells have enabled our engineers to confidently design and deliver a safer, sustainable and reliable Valen ENLiFEN ESO battery solution. Each Valen ENLiFEN ESO module has a Battery Management System (BMS) containing electronics and the intelligence to protect and control Lithium Phosphate (LiFe PO<sub>4</sub>) cells to ensure they operate at optimum levels. These advanced BMS systems allow for optional remote monitoring, an essential feature for teams managing multiple remote sites. The Valen ENLiFEN ESO's hot-swappable individual Lithium cells allow technicians to minimise system downtime and allow for maximum system efficiency.



### Applications include:



UPS



Comms



Datacentre



Mining



Rail



Solar

### Features

#### Safer

Valen ENLiFEN ESO features a BMS which prevents short-circuiting and has an over-voltage protection relay as well. These are some of the many features that support the ESO in being a safer Lithium Battery Energy Storage System.

#### Multiple BMS

Each individual battery cell contains an individual BMS. There is also a main BMS which controls all the individual battery cells within the module. The BMS advanced system allows for safer operation and longevity.

#### Plug and Play

Time spent on site inspections and maintenance is reduced thanks to the Valen ENLiFEN ESO having a hot swappable plug and play arrangement for the replacement of Lithium battery cells.

#### Total Control

An optimised touch screen operation with 3 levels of control: client, installer and manufacturer, ensures that the operation of the Valen ENLiFEN ESO system is controlled and monitored preventing untoward errors.

#### Australian Made

Designed and manufactured in Australia, means the technical product support is readily available throughout the life of the Valen ENLiFEN ESO system.

#### Software Analysis

Valen ENLiFEN ESO has a Windows software system available for data analysis.

### Specifications

Voltage	48 Volt nominal
Operating Voltage	37.5-54.7VDC at 25°C
Capacity	100Ah
Weight	75kg
Dimensions	475(W) x 600(D) x 310(H)
Operating Temp*	-20°C to +60°C*

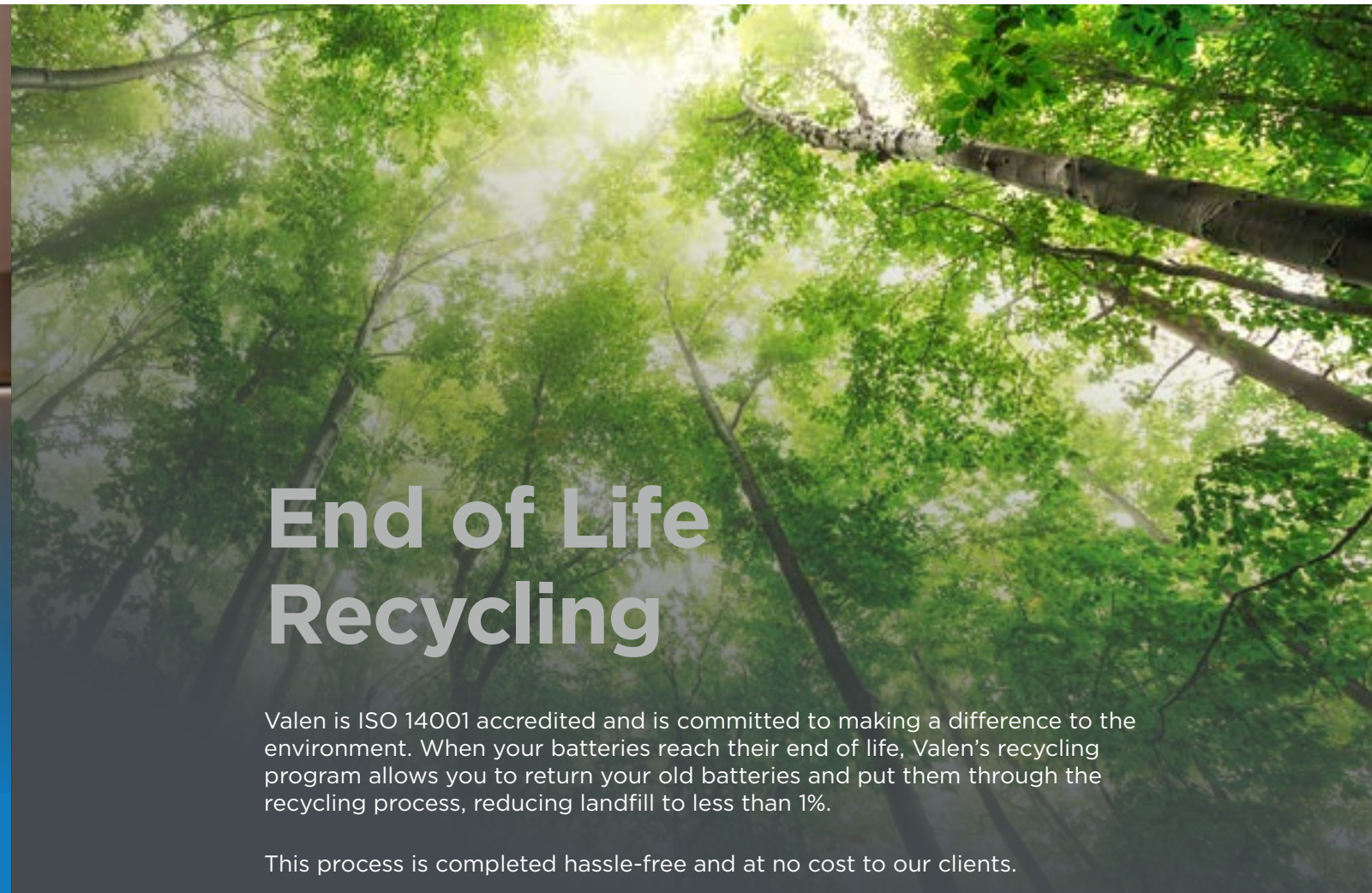
\*However Valen recommend the ENLiFEN ESO be operated in the temperature range of 20°C to 30°C to obtain full life and optimum performance.





## National Coverage

With warehouses located strategically, Valen offers fast and efficient delivery as well as superior service our clients have come to know and depend on



## End of Life Recycling

Valen is ISO 14001 accredited and is committed to making a difference to the environment. When your batteries reach their end of life, Valen's recycling program allows you to return your old batteries and put them through the recycling process, reducing landfill to less than 1%.

This process is completed hassle-free and at no cost to our clients.

All raw materials are recycled from your batteries, and any profit from these raw materials are donated to charity.





# Valen Contacts



**Gareth McKay**  
**Sales Director**

Gareth has been a part of Valen since 2015 and heads up our team of Business Development Managers across Australia and New Zealand. Gareth is a creative Sales Director who works hard to make Valen stand out from competitors in all sectors.

With extensive knowledge in energy storage and project management, Gareth is the person to call when you need that extra project support and capability. Project development and innovation is Gareth's forte, where his high-level skills come to the fore, ensuring a successful client project outcome every time.



**Stephen Daries**  
**Technical Director**

Stephen has been a part of Valen since 2012 and leads product development and innovation within Valen. Stephen is the reason Valen can offer complete, efficient and value for money integrated energy storage solutions. An innovative thinker, his contribution to the Valen team is significant to our success.

Stephen is always available for technical support on phone or email because he understands that when you are in the field, you need answers quickly.



✓ Making the Promise    ✓ Delivering the Promise    ✓ Keeping the score



## Complete Solution

Valen are an End-to-End Solution Provider; so we offer you a complete system solution! Being able to offer the complete solution we save you the hassle of having to search for additional suppliers. From design to supply, we are with you every step of the way!



## Innovative Products

At Valen we take pride in being original, so we have an exclusive range of products for our clients. These unique products and innovation ensure you stay at the front of an ever changing market.



## Personalised Training

Our qualified team of experts are readily available to provide world class training to your team. Thus, ensuring you remain up to date with the latest battery technologies, safety and testing.



## Quality Control

With our in-house quality control team and state of the art facilities, we ensure the delivery of a unique product that meets and goes beyond your expectations.



## Technical Support

Our support doesn't stop once you invest in our products; with our experienced and skilled technical team we assist you even after sale. If you have any questions about your System or Products purchased, our technical team have the answers.



## Local Business

Valen have been operating in Lake Cargelligo since 1999





## Company Details

Legal Entity	Valen Power Pty Ltd
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ACN	134 028 961
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Telephone	1300 734 253
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