



MAGELLAN POWER CASE STUDY

Solar Stand Alone Power System for 240VAC

RAAF Base Learmonth is located on the North West Cape peninsula of Western Australia, approximately 30 kilometres south of Exmouth. It is one of the Air Force's three bases that can be used for exercises or operational requirements.

The Base was established in the 1950s to provide support for land, air and sea operations aimed at securing Australia's northern approaches. During World War II, the (then) Learmonth Airfield, also known as 'Potshot', provided protection for the US Navy's submarine base in the Exmouth Gulf. It also housed a variety of Air Force radar stations, providing early warning of enemy movements.



Client
Fredon Security / Securitas

Date
June 2020

Location
RAAF Base Learmonth, Western
Australia.

Scope of Project
Design and manufacture of a Solar
Stand Alone Power System to supply
power to the gate of the air base

Client Requirement

The department of defense required a stand alone power system to supply uninterruptible power to a gate at the entrance of Learmonth RAAF base. This gate operates around 30 times a day and requires 1kVA power at 240VAC while operated.

This gate is located further away from the main camp and the power solution was required to be installed close to the gate in the outdoors with no shelter as a result a high IP rating enclosure was required.

The required system had to be designed in a scalable way so if the amount of load or the required battery autonomy increased in future, the offered system is still rated for.



Magellan Solution

Magellan provided an all in one solution consisting of solar panels, batteries, solar charge controller and inverter, with all the required accessories installed in a double skin aluminum IP53 rated outdoor enclosure. This system will ensure that contentious power is supplied to the gate using the solar panels and in case of a few cloudy days or a cyclone damaging the solar panels, the required power is provided from the battery bank integrated in the system. This solution utilizes 4 x scalable 48VDC LFP battery modules and a 10kVA rated inverter which is large enough to make the solution future proof.

Major Components

- The battery bank is made of 4 x 48VDC 2.4kWh lithium battery modules
- The solar charge controller rated for 250V PV input voltage and 60A / 3440W output at 48VDC
- The solar array is made of 6 x 330W poly crystalline PV panels
- The inverter is rated for 10kVA at 240VAC output
- The battery modules, solar charge controller, inverter, and controller installed in an IP53 rated industrial outdoor enclosure

