Power Pack and Communications

Specifications for

WINDCUBE LIDAR Remote Sensor

POWER PACK AND COMMUNICATION SYSTEM DESCRIPTION

The WINDCUBE Power Pack has been designed to provide maximum reliability through rugged and proven technologies. A combination of diesel generation with deep cycle batteries has been selected to provide consistency, with 100% redundancy on generation to deliver optimum reliability.

Construction has been designed for remote deployment of the LIDAR, power pack and communication system in the harsh climactic conditions. The System will comprise of 6 modules;

- No 1 Diesel Generator and PLC controller
- No 2 Diesel Generator and PLC controller
- No 1 Battery Pack and master PLC, satellite modem and IP hub
- No 2 Battery Pack
- Diesel Transport tank (for refuelling)
- LIDAR and cable Transport Module
- Module Transporter (to pick up and move individual modules with quad bike)

Each module is individually constructed from extruded aluminium with the heaviest modules weighing less than approximately 400 kg (the generator modules including fuel), is approximately 800mm square x 1000mm high and is capable of deployment by 4 wheel drive vehicle, farm quad bike; or helicopter.

The WINDCUBE Communication System has been designed to operate anywhere in New Zealand through the use of satellite internet technology. Satellite internet deployment is far more suitable for remote sites in New Zealand than the Vodafone or Telecom mobile network due to speed and coverage.

The Communication System is housed in Battery Pack No 1 and connected to the WINDCUBE module by a weather proof Ethernet cable.

Environmental Parameters

Temperature Range	-10deg C to +35deg C
Humidity	0% to 100%
Altitude	Sea Level to 2000m

Communication Parameters

Data downloading	1024 kbps/sec up; 2048 kb/sec down
Data Cap	10GB/ month (user specified)

Power Pack Technical Parameters

PARAMETERS	EXTREME WEATHER	NORMAL WEATHER
LIDAR Power Requirements* (W)	375	110
Communications Power Requirements* (W)	25	25
Total Power Requirements* (W)	400	135
Daily Power Demand (KWhr)	9.6	3.2
Diesel Generation Capacity (kW)	2 x 150Amp@24V	2 x 150Amp@24V
Battery Capacity (Ah)	2400	2400
Fuel Requirement / Month (litres)	150	50
Operation with no Diesel Generation (hrs)	50	150

* 27V regulated power to LIDAR Unit, maximum ripple and noise allowable < 150mVp-p

Security for LIDAR and Power Pack

Anchoring	Screw in anchors for locks to power pack and LIDAR
Fencing	2 fenced compounds with 4 pieces fencing for each (1m high)
GPS	Locator Fitted

Power Pack Component parts

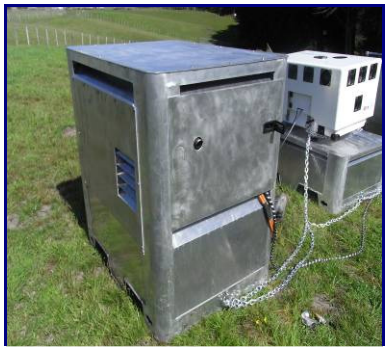


Fig 1 - Generator Module:
Consists of 2 high current Diesel generators built on a 240 Litre fuel tank incorporating a Energy3 Generator controller with communications and total duty cycle and fault control

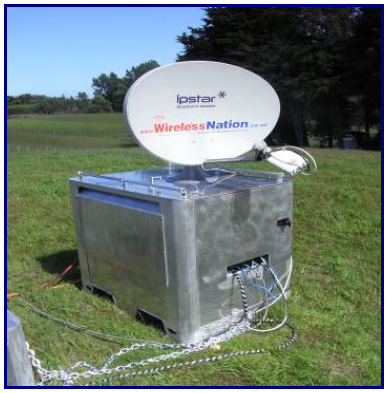
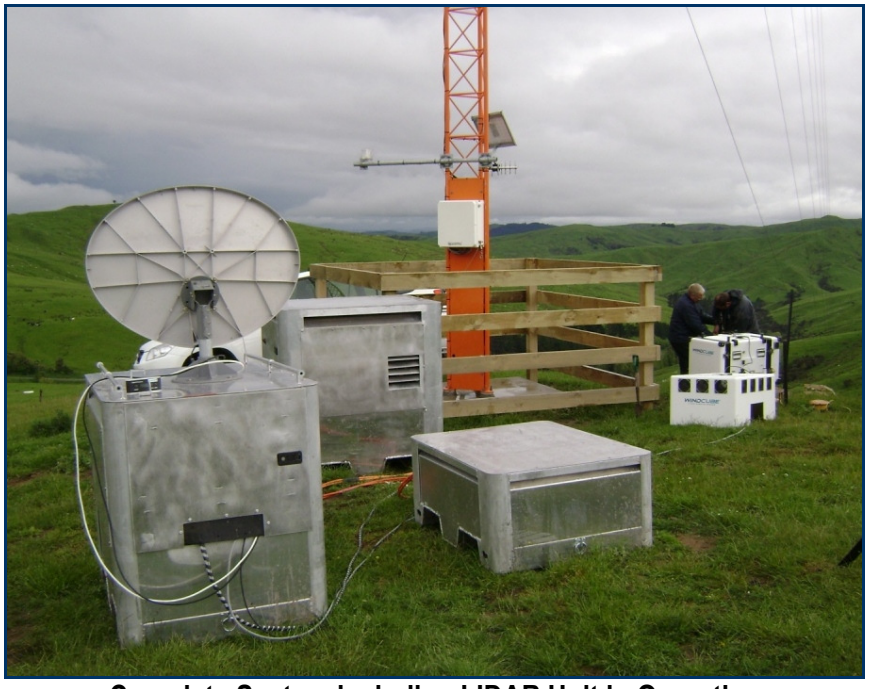


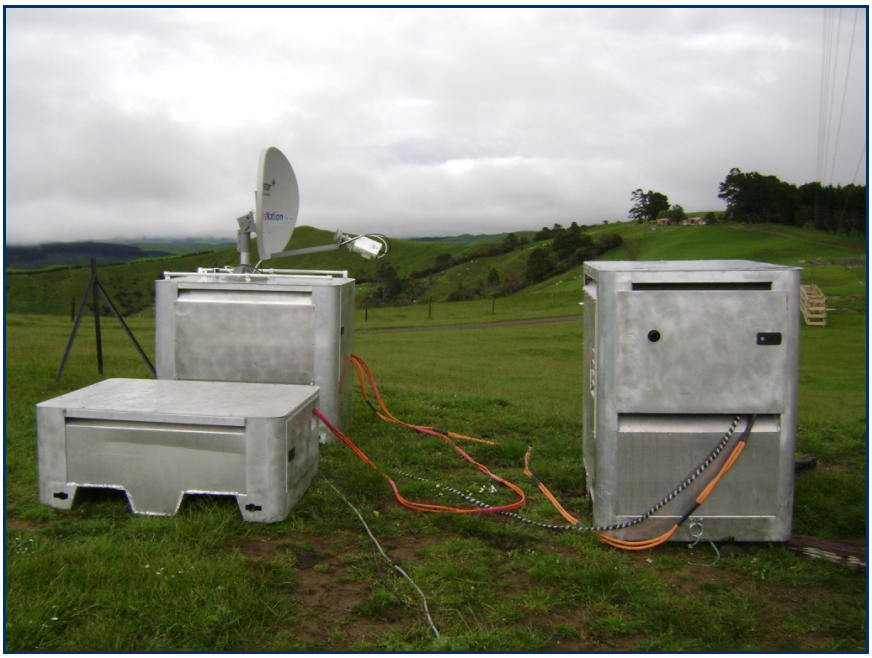
Fig 2 - Communications Module:
Consists of a Satellite communications unit, Primary battery storage unit, and overall power supply control and load management unit

Fig 3 - Secondary Battery Storage unit:
This unit consists of additional battery storage complete with connection point, battery isolator, and circuit breaker. Unit must be used with primary battery storage unit.

Photos

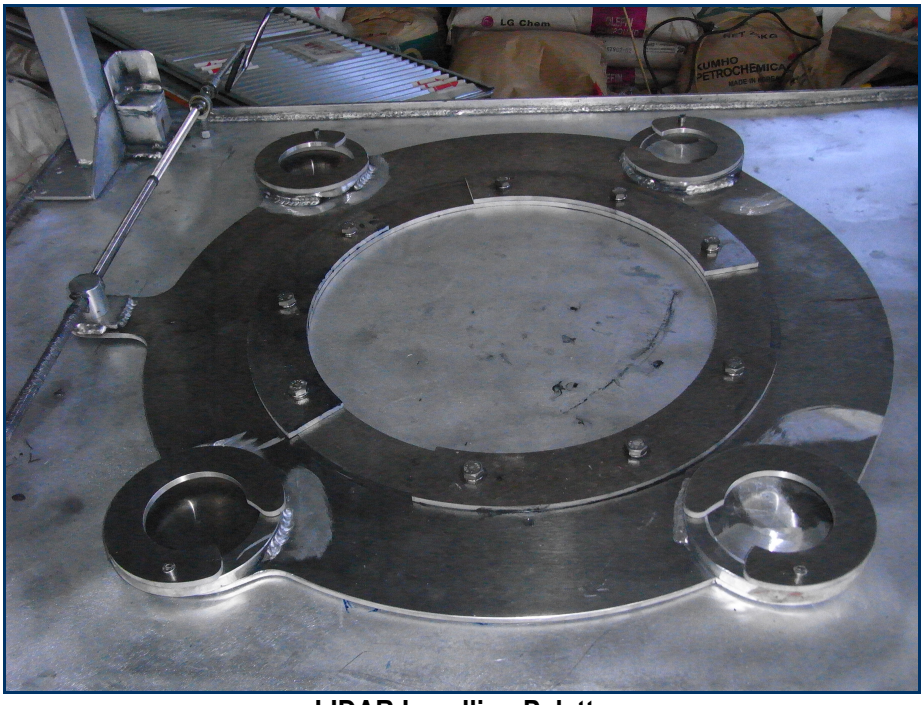


Complete System including LIDAR Unit in Operation



Complete System

View of Generator Module



LIDAR Levelling Palette


energy3