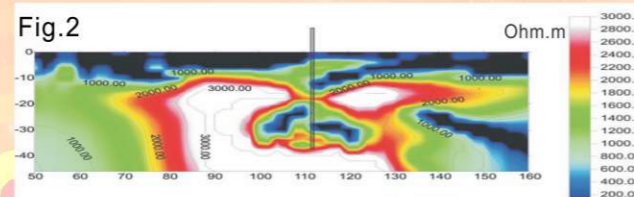
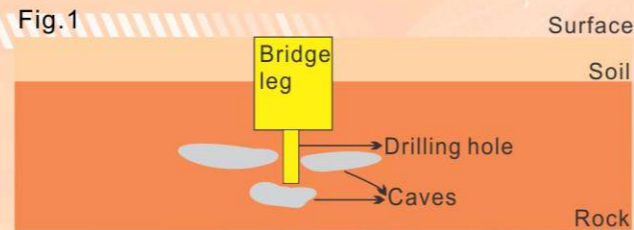


## Case Studies:

### • 1. Surface-borehole survey

As figure 1 shows, this surface-borehole survey was configured to accurately find caves for structural purposes. The operator easily collected 60k data points within an hour due to our full-channel technology, allowing the collection of voltage readings for every combination of current electrodes.

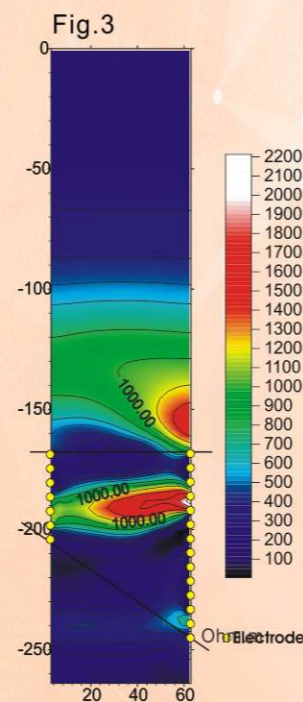


Indicated in Figure 2 is the inversion image obtained from the data set. There is a low resistivity anomaly on each side of the borehole; two caves were found after drilling holes on both sides of the borehole.

### • 2. Cross hole survey

As figure 3 depicts, this cross-hole survey was configured to find aquifer zones. Only 7 and 14 electrodes were used in the left and right borehole respectively due to site limitations. With a special data acquisition arrangement, 2,500 data points were collected within 10 minutes.

The inversion result indicates alternating layers of conductive and resistive rock at approximately 190 metres, a resistive layer (red) decreasing in thickness from right to left is interpreted as a shale layer. Immediately below this is a conductor, interpreted as porous sandstone. Follow-up borehole logging agreed with the inversion result.



## ZZ: Pioneer of the Next-Generation Resistivity/IP System



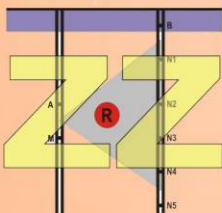
FlashRES-UNIVERSAL64

FlashRES-UNIVERSAL96

All arrays simultaneously  
Full-channel  
Low cost, high precision

## Manufacturer:

ZZ Resistivity Imaging Pty Ltd 3/239 Magill Rd, Maylands, Adelaide, SA 5069, Australia  
Email: [sales@zzgeo.com](mailto:sales@zzgeo.com) / Phone: +61-8-7123 3509 / Website: [www.zzgeo.com](http://www.zzgeo.com)



**ZZ Resistivity Imaging Pty. Ltd. Australia**  
[www.zzgeo.com](http://www.zzgeo.com)

## Applications:

- Archaeological exploration
- Dam safety inspections
- Fault mapping
- Groundwater resource exploration
- Mineralisation exploration
- Underground fracture detection
- Bridge/tunnel base exploration
- Engineering exploration
- Geothermal exploration
- Lithological structures
- Pollution mapping
- Void detection

## Specifications:

### • General

Measurement variables	Resistivity, IP and SP
Operating time	30 data points/second
Measurement range	From -10V to +10V
SP compensation	Automatic cancellation
Resistivity cycle times	From 0.1S to 10S
Automatic multi-electrodes	Yes
Data sampling rate	100KHZ
Data storage	Unlimited
Data transmission	USB
Power supply	External 12V battery
Operating temperature	-20 to +70°C
Operating humidity	98% RH
Weight	5.3 kg
Dimension	339 x 295 x 152mm
Built-in GPS	Optional

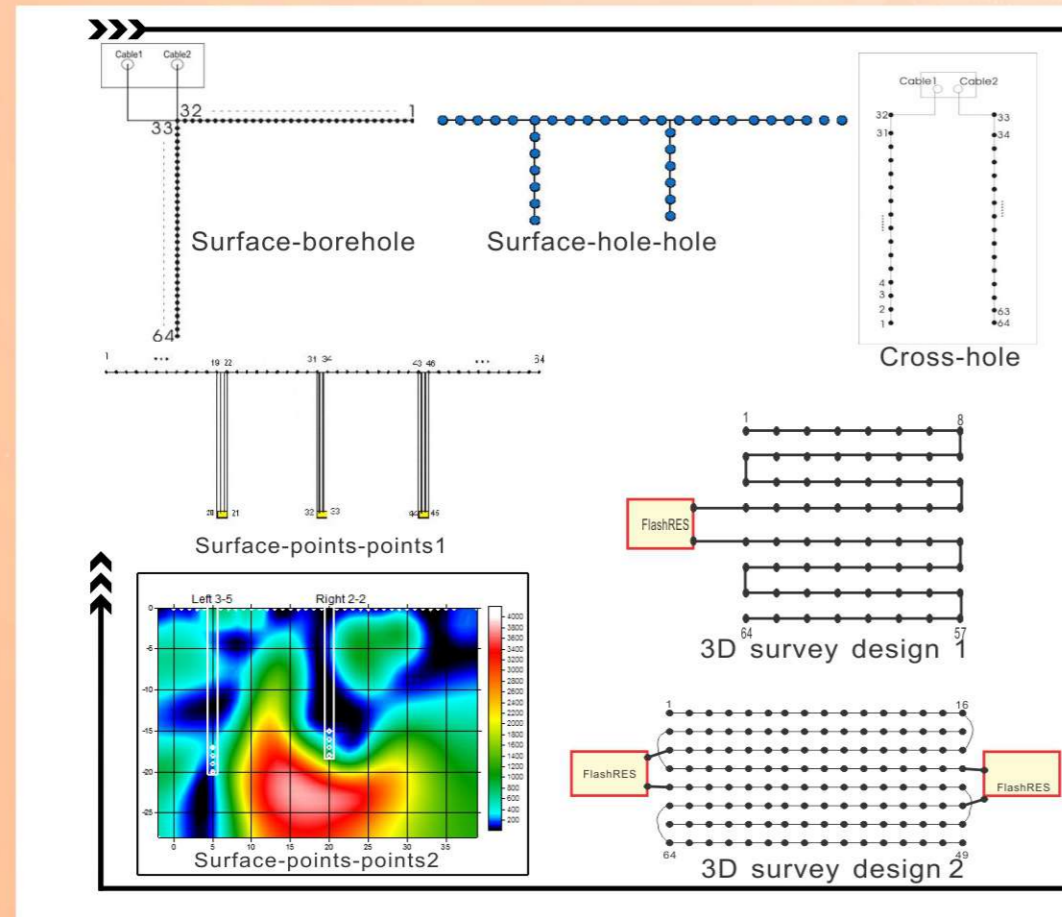
### • Transmitter

Power	250W
Current	Up to 3A
Accuracy	Better than 0.2%
Voltage option 1	50/120/350V (100/240/700Vp-p)
Voltage option 2	100/250/600V (200/500/1200Vp-p)

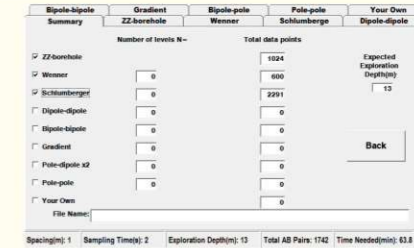

### • Receiver

Electrodes	64/96
Channels	61/93
Accuracy	Within 0.1%
Input impedance	>10 <sup>7</sup> Ohm.m
Input voltage protection	1000V
AD resolution	24 bits
Noise suppression	Better than 100 dB -automatically suppresses powerline noise.

## FlashRES-UNIVERSAL's flexible configurations:



## Features and benefits:

► Features	► Benefits
1. <b>Simultaneous, comprehensive array resistivity instrument</b>	Fully uses ALL electrodes anytime and collects more data. This makes the electrode layout more flexible and the inversion result more accurate and reliable.
2. <b>Full channel data-acquisition system.</b>	Most resistivity instruments have only 4, 8 or up to 10 channels. FlashRES-UNIVERSAL instruments have 61/93 channels and can collect 61/93 points of voltage data simultaneously for any AB current injection. The operator can therefore spend less time in the field due to the superior data collection speed.
3. <b>Able to collect 62k data with 64 electrodes or 80k data with 96 electrodes in under one hour.</b>	Visualise your target better than ever before with our full-channel system. You will receive a superior image resolution using our instruments than traditional 6, 8 or 10 channel competitor models.
4. <b>Ability to collect data with any conventional or user-designed data acquisition arrays.</b>	Create your own array, or stick to the basics. For the most comprehensive option, opt to use our proprietary ZZ Array.
5. <b>Ability to combine all specified acquisition arrays together and collect data in a single run.</b>	
6. <b>The system can either run alone or linked with each other to perform long surveys (up to 320 electrodes).</b>	Our instruments are designed to cooperate, so there is no need to struggle with sub-units. Our versatility of operating styles puts us ahead in every regard. We have a configuration that is best for you.
7. <b>2.5D resistivity inversion software.</b>	This produces superior resistivity inversion imaging than 2D inversion software.
8. <b>Displays full wave-form current and all voltage data on screen.</b>	<p><b>Demo our software through our website!</b> <a href="http://www.zzgeo.com">www.zzgeo.com</a></p> 
9. <b>Lightweight design.</b>	Rough terrain, wet conditions, and moving past fences is a lot easier thanks to our lightweight, minimalist design.