

# Gekko-80

## Datasheet



Gekko-80 is a compact, lightweight and ultra-wide band ground penetrating antenna for a very high radio frequency band. This antenna, with its good penetration and signal to noise ratio, is an example of the fact that deep penetration and good resolution can be achieved at once. It is therefore ideal for applications that require deep penetration and high resolution, while still having an easily maneuverable GPR system. Examples of such applications are water level mapping, dam structural integrity surveys and more.

The precise design of the outer shell of Gekko-80 provides a stable construction that doesn't tip and withstands the challenges that will be presented by the outer environment.

Gekko-80 is fully compatible with the rest of the Geoscanners equipment. It is easily mounted on the GST-806 cart, designed specifically to be used on cars or other vehicles, or with the SVC-820 cart (standard 4 wheel cart).

Just as with the rest of the Geoscanners antennas, Gekko-80 is designed with the end user in mind. It can be used in both monostatic mode or in bistatic mode. Depending on which mode is desirable by the user, the antenna comes equipped with top of the line Geoscanners plug-in electronics; TR-501 for monostatic mode or a combination of RX-501 and VHT-501 for bistatic mode. By including the transceivers in the antenna, we made sure that the end user receives a highly integrated device with all the matching already made to give the best possible results.





### Area of Application

- Deep geological surveys
- Glacier surveys and monitoring
- Water level mapping
- Alluvial deposits and layer mapping
- Dam structural integrity surveys, embankment control

### Mechanical and Environmental Specifications

Dimensions LxWxD (mm/inches)	1375x120x222 / 54x4.7x8.7
Weight (kg/pounds)	3.3 / 7.2
Fastening points LxW (mm/inches)	260x60 / 10.23x2.36
Ingress Protection*	IP54
Operating Temperature (°C / °F)**	from -30 to +75 /from 14 to +104
Relative Humidity (%)	99 (NC)

\*TR-501 attached

\*\* Antenna only, for the electronics refer to the appropriate datasheet.

### Electrical Specifications

Antenna Type	Wu-King Inverted Folded Bowtie
Shield Type	Unshielded
Feed point impedance (Ohms)	270*
Antenna Bandwidth (at 10dB)	90%*
Antenna Center Frequency (Mhz at 10dB BW)	80
Front to back ratio (dB)	0
Gain (dB)	2

\* This data is preliminary based on limited amount of units

### Recommended Specifications

Pulse repetition Frequency, PRF (kHz)	50
Scan Rate, Scans/Second	25
Range (ns), (depends on soil penetration)	256 – control unit maximum
Low Pass Filter Cut-Off Frequency (MHz)	40
High Pass Filter Cut-Off Frequency (MHz)	160
Gain	Adjust to 75% Swing
Distance from surface (m / feet)	0 – 15 / 0 – 49.2

### Accessories\*

- GST-806 Car survey trailer
- SVC-820 Standard 4 wheel cart
- K-100B Adapter for SVC-820
- ASH-822 Hand carrier for one Gekko antenna

\*Accessories are not included

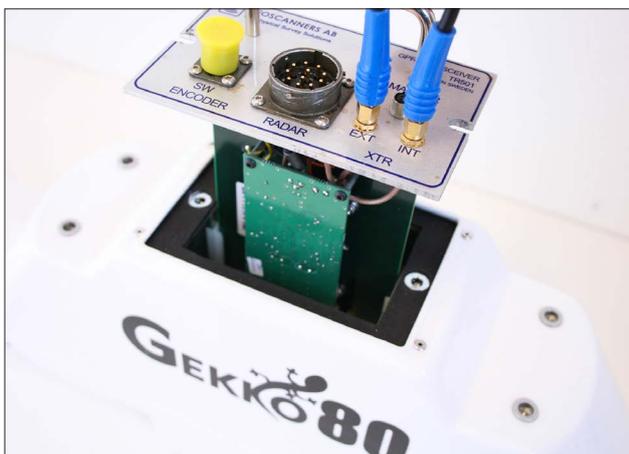
## Plug-in Electronics



Gekko-80 antennas can be equipped with a variety of plug-in electronics, allowing different operation modes. There are 3 different plug-in electronics available, one of which (or two for the bistatic mode) are included in an order depending on what mode the user is requesting. The 3 plug-in electronics are:

- TR-501 – a transceiver plug-in that is used with Gekko-80 antennas that will be operated in a monostatic operation mode.
- VHT-501 – a transmitter plug-in that is paired with a RX-501 receiver for Gekko-80 antennas that will be operated in bistatic mode. VHT-501 can also be paired with TR-501.
- RX-501 – a receiver plug-in with improved sensitivity that is paired with a VHT-501 transmitter for Gekko-80 antennas that will be used in bistatic mode.

Regardless of what plug-in or plug-in combination that is included in an order, it is important that the plug-in electronics are correctly inserted into Gekko-80. In order to not complicate things, the labels were placed strategically on the antennas. While inserting a plug-in, the text on the plug-in must be facing the same direction as the "Gekko-80"-label, as shown in images 1 and 2.



1. Inserting TR-501 transceiver into Gekko80.

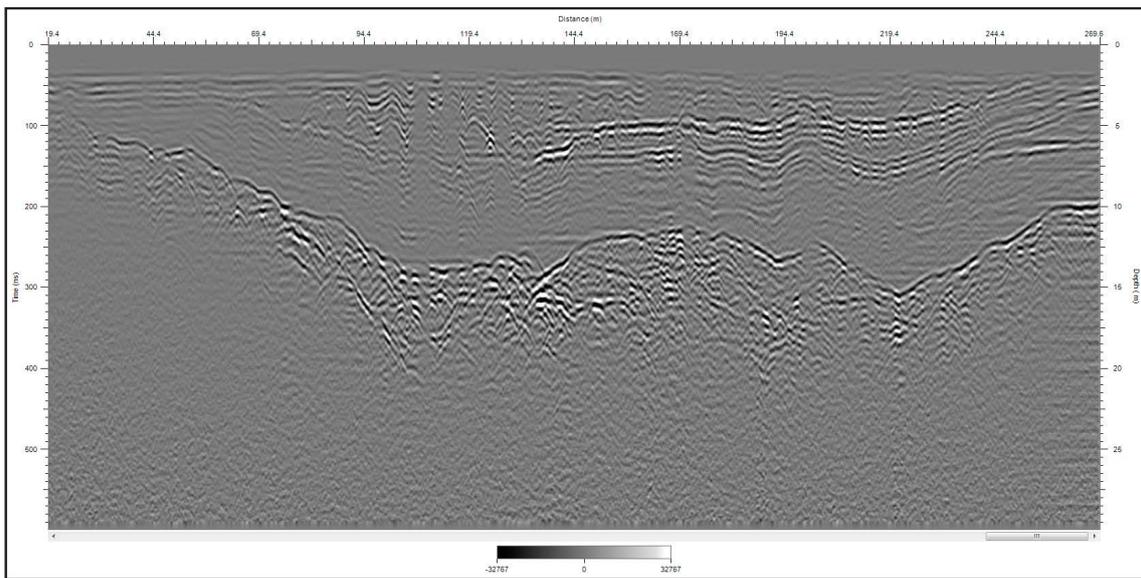


2. Two Gekko-80 antennas equipped with the proper plug-in electronics for bi-static mode.

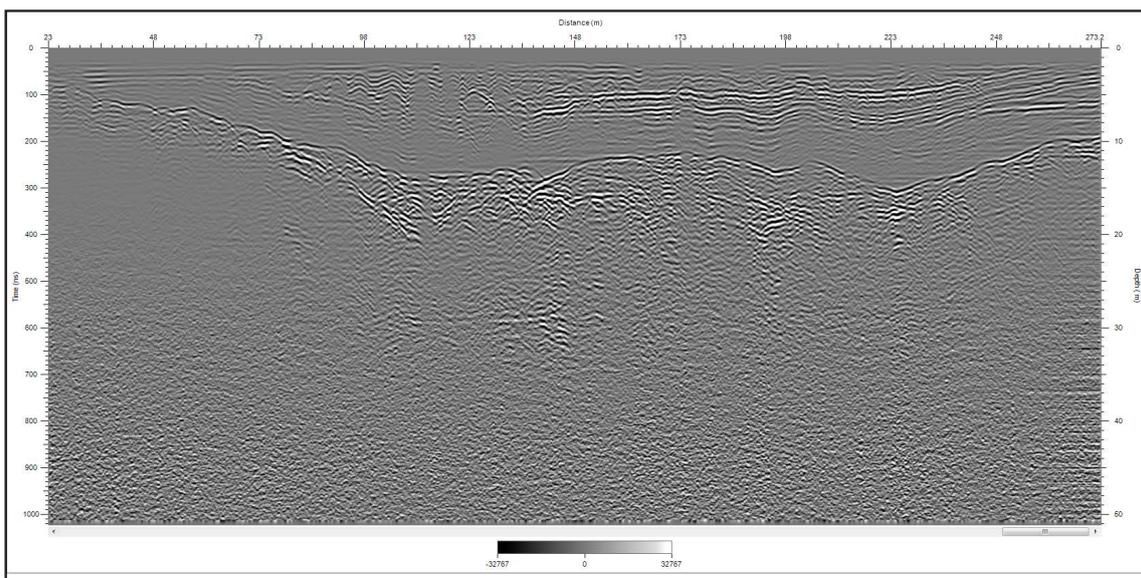
## Monostatic and Bistatic mode of operation

It has been mentioned throughout this datasheet that Gekko80 can be used in monostatic or bistatic mode. Choosing which mode fits best depends on the demands of the intended survey. If a survey requires a compact solution, then a Gekko80 antenna in a monostatic mode gives good results at the same time as it is easy to use. If the main requirement of the survey is to achieve the greatest possible depth, then two Gekko80 antennas in bistatic mode, equipped with a VHT501 transmitter and a sensitive RX501 receiver, is the perfect choice. Images 3 and 4 show the how data can look in the two different modes.

In some cases users will be required to do a combination of different types of surveys. Therefore it is necessary to have both options ready, so that no time needs to be wasted. By purchasing two Gekko80 antennas together with a TR501 transceiver and VHT501 transmitter, the user has the freedom to choose and switch between the two options directly on the field.



3. Gekko80 in monostatic mode, equipped with a TR501 transceiver.



4. Gekko80 in bistatic mode, equipped with a TR501 transceiver and a VHT501 transmitter.

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