

FLB-390

Datasheet



FLB-390 is an air launched ground penetrating antenna developed specifically to cover the needs for non-contact antennas in applications where full contact is not possible. The side lobe isolation properties of FLB-390 are exceptionally good, even though this can be a problem area for air launched antennas in general.

Because of the scalability of the Geoscanners products, it is easy for the user to use the same antenna for different situations, surveys and environments. FLB-390 is no exception and can be used for rough and even terrains, high speed road inspections, measurements from helicopters and more. It can also, because of the very narrow antenna beam and extremely high front-to-back ratio, be used in crowded environments where other antennas might not be up to the task.

FLB-390 is a good extension of the road survey systems that only have horn antennas with shallow penetration. When combining the horn antennas with FLB-390, the user will have a powerful system for surveys that require both shallow and deep penetration. With this configuration the users will be able to inspect the top road layers and deeper subbase anomalies in one go.

Irregardless of whether FLB-390 is used alone or with other antennas, the user will have a powerful air launched antenna for deep penetration.





Area of Application

- Rough and uneven terrain where ground coupled antennas cannot be used
- Secondary lining tunnel surveys
- Ballast inspection surveys
- Snow layer measurements from helicopters
- Volcanic ash layer measurements
- High speed road inspection surveys

Mechanical and Environmental Specifications

Dimensions LxWxD (mm/inches)	360x330x157 / 14.2x13.0x6.2
Weight (kg/pounds)	3.0 / 6.61
Fastening points LxW (mm/inches)	210x160 / 8.26x6.30
Ingress Protection	IP65
Operating Temperature (°C / °F)	from -25 to +40 /from 14 to +104
Relative Humidity (%)	99 (NC)

Electrical Specifications

Antenna Type	Feed Loaded Bowtie
Shield Type	Top and Side Shield
Distance between the TX and RX (mm/inches)	160 / 6.29
Feed point impedance (Ohms)	385
Transmitted Pulse Amplitude (Volts)	160
Receiver Sensitivity (µVolts)	14
Antenna Bandwidth (at 10dB)	77%
Antenna Center frequency (MHz at 10dB BW)	390
Survey Wheel Output Voltage (Volts)	5.01

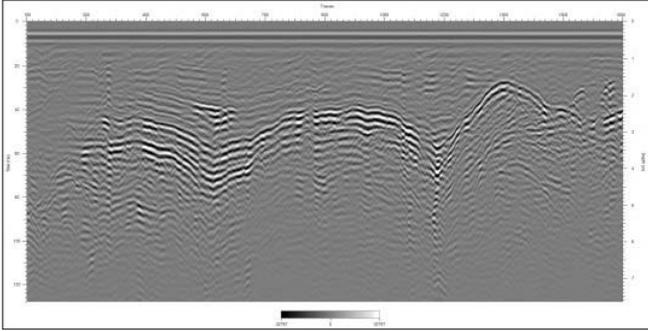
Recommended Specifications

Pulse repetition Frequency, PRF (kHz)	≥100
Scan Rate, Traces/Second	100
Range (ns), (depends on soil penetration)	25-100
Low Pass Filter Cut-Off Frequency (MHz)	780
High Pass Filter Cut-Off Frequency (MHz)	150
Gain	Adjust to 75% Swing
Distance from surface (cm / inch)	15 - 75 / 6 - 29.53

Accessories*

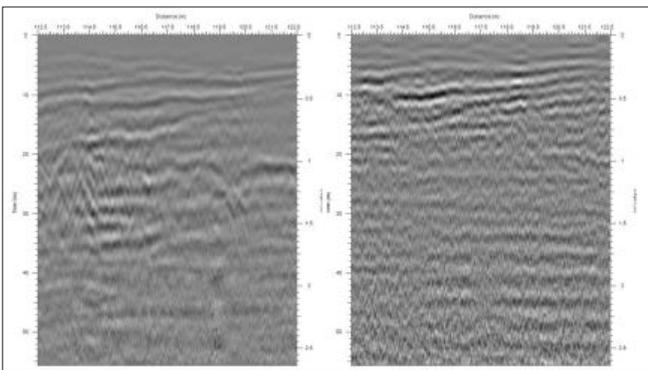
- GST-806 Car survey trailer
- CMH-203 Three antennas car mounting kit
- Tray-L Protective skid plate
- SVC-822 Single wheel cart

*Accessories are not included



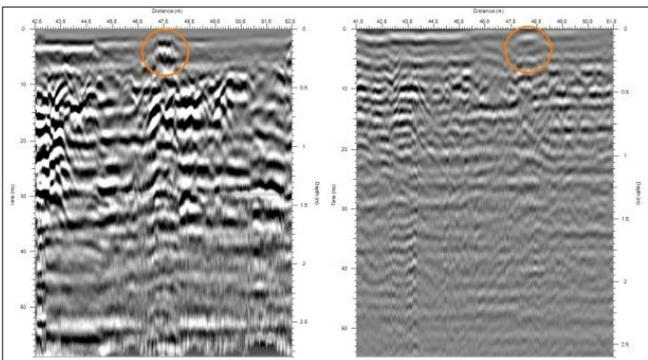
1. Raw data collected with FLB-390 in a sandy area in Boden, Sweden.

Air launched antennas with narrow beams like FLB-390 do not produce wide hyperbolas like ground coupled antennas do. Because of this, air launched antennas are not a very good choice for utility detection surveys, but are well suited for detection of cavities and layers.



2. Ground coupled antenna, GSSI 5103 to the left and Air launched antenna, Geoscanners FLB-390 in a highly conductive area, centre of Paris.

Because a large amount of energy is wasted in the interface between the air and ground surface, air launched antennas have to produce a very narrow beam to focus as much energy as possible into the ground to get a proper response. In conductive areas the penetration can be affected even further by the resonance established between the conductive surface and the antenna elements.



3. Comparison of a ground coupled antenna and the FLB-390 in an area close to the surface pipes.

Since the antenna elements are not placed right on top of the ground metal pipes close to the surface, they do not produce heavy coupling like the ground coupled antennas do. This can, to some extent, be a disadvantage and an advantage at the same. When looking for layers and cavities, these pipes will not disrupt the operation of the FLB-390 like they otherwise do with the ground coupled antennas.

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