

BR-1001 Doppler Radar

The BR-1001 Doppler radar antenna has been especially designed for muzzle velocity as well as for short to medium range velocity measurements.

BR-1001 General Description

The BR-1001 Doppler radar antenna utilizes the Doppler principle to measure the velocity of moving objects. It is particularly well suited for measuring the velocity at the gun muzzle, but is also powerful enough to measure at medium range depending on the caliber. This radar unit is ideal for measuring on 5.56mm to 155mm projectiles.

The radar antenna consists of a transmitting and a receiving antenna (bistatic configuration). The transmitter output power can be selected between 0.2W and 2W to accommodate short and long range measurements. The receiver has very low noise figure in order to provide maximum sensitivity and detection range. When used in conjunction with Infinition's junction box and TestCenter Doppler processing software, it provides a powerful tool for ballistic analysis.

Rugged Construction

The BR-1001 housing has been designed using magnesium casting to provide excellent rigidity while minimizing its weight. The entire unit is sealed to prevent dust and water from entering the housing and damaging the electronic components. The radar is painted white to minimize sensitivity to the heat generated by the sun. The BR-1001 unit can operate under a wide range of temperature and weather conditions.

Performance

The performance of the BR-1001 unit has been calculated based on actual measurements on different projectile calibers. The range performance in the table below takes into account the effect of the projectile aspect angle along the trajectory.

Caliber	Range Performance (Typical / Maximum)
5.56mm (-58dBsm RCS)	350m / 500m
155mm (-25dBsm RCS)	1700m / 3300m



Specifications

Antenna gain	23dBi
Antenna Type	Flat Panel Microstrip
Beamwidth	9 x 11 deg
Polarization	Vertical (horizontal optional)
Transmitter Output Power	0.2 or 2Watts, selectable
Transmitter Source	Phase locked DRO, CW
Modulation	None
Frequency	10.525GHz (nominal)
Stability	+/-15ppm
Receiver Noise Figure	< 3dB (all losses combined)
Radial Velocity Coverage	30 – 5000m/s
Operating Temperature	-20 to 50degC
Supply	115Vac 60Hz 1.0A (North America Model) 230Vac 50Hz 0.5A (European Model)
Dimension	51cm x 27cm x 13cm
Weight	14kg
Approvals	CE, FCC



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