

BR-1022 Doppler Radar

The BR-1022 Doppler radar antenna has been especially designed for short to medium range velocity measurement on all kinds of projectile.

BR-1022 General Description

The BR-1022 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 velocity at short and medium range, for projectile calibers ranging from 5.56mm to 155mm including standard projectiles, basebleed, tracers, APFSDS, sub-calibers, rockets, etc.

The radar antenna consists of a transmitting and a receiving antenna (bi-static configuration). The transmitter output power can be selected between 0.2W and 2W to accommodate short and medium range measurements. The receiver has a very low noise figure in order to provide maximum sensitivity and detection range. It also provides adequate filtering to reduce the likelihood of interference from other nearby radars operating in the same frequency range. When used in conjunction with Infinity's junction box and TestCenter Doppler processing software, it provides a powerful tool for ballistic analysis.

Rugged Construction

The BR-1022 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-1022 unit can operate under a wide range of temperature and weather conditions.

Performance

The performance of the BR-1022 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)	> 500m / 700m
155mm (-25dbsm RCS)	> 3300m / 4600m

Specifications

Antenna gain	28dBi
Antenna Type	Flat Panel Microstrip
Beamwidth	4 x 4 deg
Polarization	Vertical (horizontal optional)
Transmitter Output Power	0.2 or 2Watts, selectable (higher power optional)
Transmitter Source	Phase locked DRO, CW
Modulation	None
Frequency	10.525GHz (nominal)
Stability	+/-5ppm
Receiver Noise Figure	< 1.8dB
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	83cm x 45cm x 10cm
Weight (without yoke)	21kg
Approvals	FCC



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sales@infinition.com

www.infinition.com