

## **Bulletseeker Technical and Design Specification:**

### **1.1 Product description**

#### **1.1.1 ISM Band**

120 GHz Transceiver TRA\_120\_02 is used in this project and it is capable of working in the ISM Band. The middle point of the ISM band operation frequency 122.500 GHz is set from the start of the program.

#### **1.1.2 Speed**

The Medium Speed Doppler Sensor should cover 250 m/s to 1250 m/s (820 -3940 fps) speed range with an accuracy of better than 2m/s (6.6 fps)

##### **1.1.2.1 Detection descriptions**

Detection of the bullet will take between 3ms to 33ms with a detection window of about 1m. With an optional parabolic lens adapter up to 3m.

#### **1.1.3 Power Consumption**

Rechargeable Li-Ion battery Samsung ICR18650-connect by USB-C , 2200 mAh , 3.7 V

Permanent radar work by charge : 6 hrs with radar sensor , LED and Bluetooth

Recharge : 5 hrs by USB-C

Since the radar is powered using an LDO and the program will be switched to low power consumption mode (sleep mode) after no successful detection after duration of 1 minutes and it will be switched off after no detection for 10 minutes.

## **2 Functional description**

The frontend operates in 122.5 GHz in continuous wave (CW) radar working principle to detect speed of a bullet.

The functional part of the system consists of switching on/off the transceiver, sampling the signal and detection of the bullet, sleep mode and transmitting data over a Bluetooth module.

Radar parameters, processing parameters and module settings cannot be changed by customer/user.

Data transferred from the radar module to the app can be processed as far as possible.

### **3. Additional features**

- A quick connector for Picatinny rails is part of the product
- The device has been successfully tested to protect against damage from recoil up to 50 g
- A parabolic lens is offered as an option for difficult conditions, especially with strong muzzle clouds
- The device has been tested and recognizes all calibers from .177.  
For large muzzle clouds, an optional parabolic lens can/must be used.
- The level of no reads for a test sample of 100 rounds is no more than 5 no reads or missing signals when the BULLETTSEEKER is set up and used correctly
- The device is working with suppressors, muzzle brake and without
- Product is rated IP54, dust-proof and splash-proof  
(water splashed against the housing from any direction must not have any harmful effect)
- CE and FCC certificated
- Products can be mounted from 10.5" to 24" behind the muzzle. This applies to all calibers.
- The device comes with an APP for ANDROID (from version 9) and Apple IOS (from version XX).
- APP version HS 10 is part of delivery, available via Google Play and APP Store (Apple)
- The HOME page of the APP shows the actual shot, actual string, extreme spread and standard deviation
- The STRING page contains editable information about all the shots belonging to the string. Location and weather information. All shots are automatically saved in a database.
- On the PROFILES page you can enter specific information about the guns and ammunition used
- Various settings and presets can be made on the SETTINGS page. Metric or US units can be selected for the units of measurement.

dimensions: Tube 100 x 40 mm

weight: 182 g

mounting : quick click adapter for Picatinny rail

memory: no internal memory, memory is used from mobile phone (Android and IOS)  
data base with all shots ever done, editable,  
incl. GPS-Position and weather information

battery: Li-ion battery Samsung or LG, 6h permanent transmission possible,  
charging by USB - C

range: 250-1200 m/s all ammunitions

data processing onboard raw data , App is processing fine data and display it on your phone

Bluetooth connection to your mobile phone

Certificated with CE and FCC

For difficult situations is a parabolic adapter available which enables to receive more data (more detections) .

## CROSSFIRE

the doppler system is always susceptible to external influences such as other frequencies , magnetic fields etc. .

Purely physically, regardless of the device.

We have therefore decided on a frequency and power output that reduces this problem.

As a standard, we only measure on the first meter. With a parabolic attachment up to 2-3 meters.

As a result, we have virtually no influence from neighbors shooters or in tunnel shooting ranges.

Other products there constantly have problems with the electrical systems, lighting (NEON starters) and reflections from the tunnel walls.

Reading distance: 0.1m - 1m standard , with parabolic adapter 0.1-3m , regardless of ammunition

mounting: additional to the Picantinny we have an v-connector ( part of the product) with which you can mount the Bulletseeker on the barrel.

The Picantinny mounting is a demand from shooters.

The BS can be mounted anywhere around the barrel. Approx. max 15 cm lateral distance, max. 60 cm from the muzzle.

