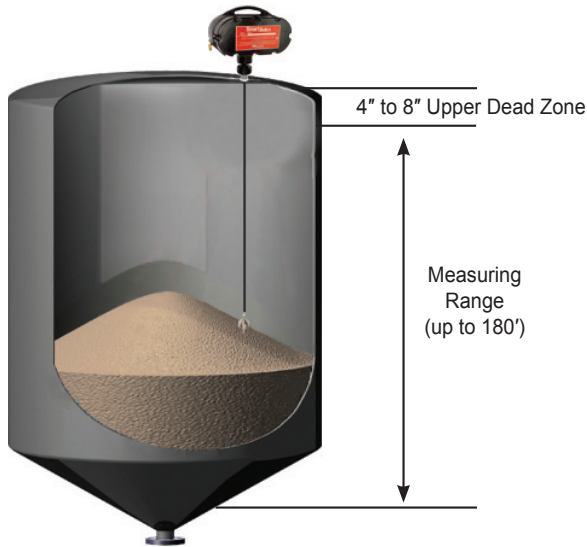
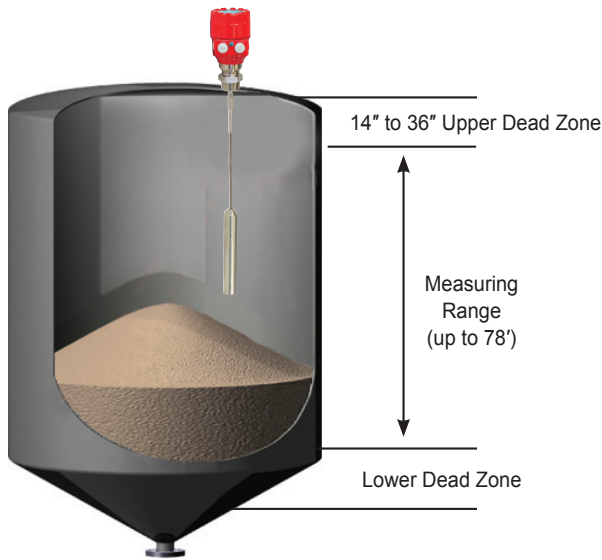


# How Continuous Level Sensors Work



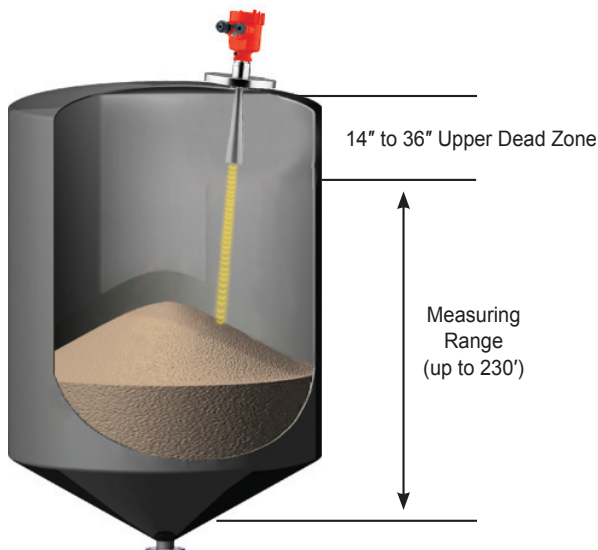
## SmartBob 2 and TS1

Measuring range is from the tip of the "Bob" when fully retracted to where the Bob contacts material at the bottom of the vessel. The Smart-Bob measures the level of headroom from a single point on the material surface directly below the sensor's mounting location.



## Guided Wave Radar

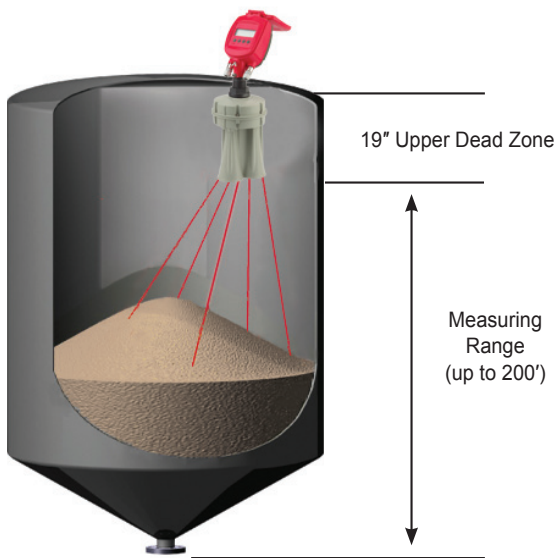
Measuring range is from 14" to 36" below the threads on the process connection (upper dead zone), to 4" above the top of the counterbalance weight (lower dead zone). It measures the level of headroom at a single point where the cable is located in the vessel.



## Open Air Radar

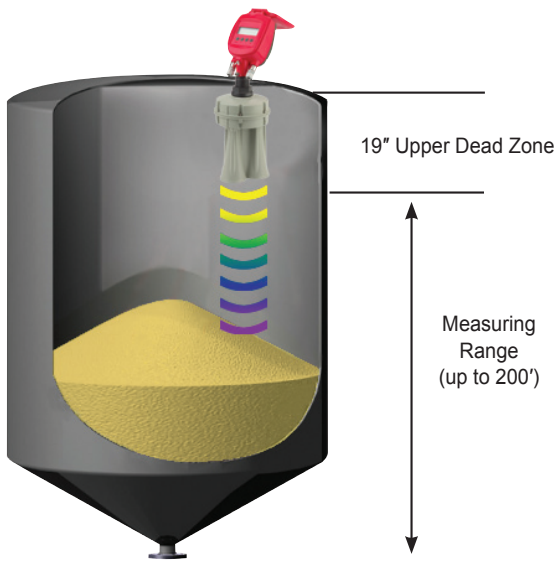
Measuring range is from 14" to 36" below the threads on the process connection (upper dead zone). Open Air Radar measures the level of headroom at a single point on the material surface directly below where the unit is aimed. For liquids it is generally pointed straight down (vertical), and for bulk solids it is aimed at the discharge to prevent the signal from bouncing off an angled hopper bottom causing false reflections.

Dead zones: Radar, Ultrasonic, and 3DLevelScanners have a default blanking distance, or dead zone, typically from the end of the process connection to allow the units to stop transmitting after the transmit pulse is applied and before the receiver circuit is turned on to listen for the return echo. For example, if using a 3DLevelScanner 19" below the threaded process connection would be considered a full tank. Dead zones can be increased if a lower full point is desired. Most manufacturers have the blanking distance pre-set in the controller, based on the unit selected. The SmartBob's dead zone is from the tip of the sensor probe hanging from the cable when the unit is fully retracted.



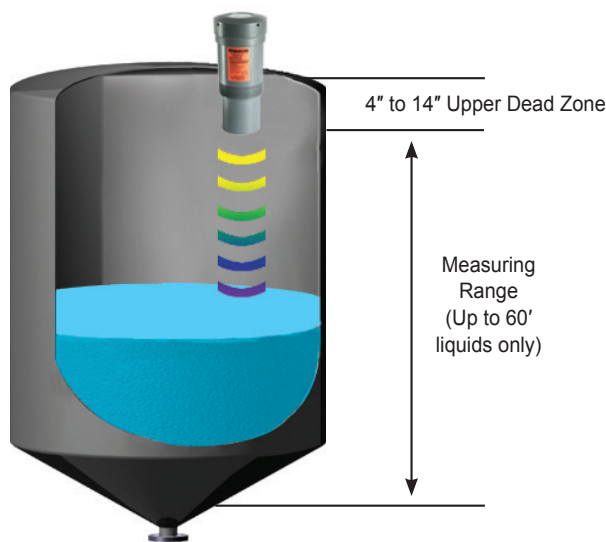
## 3DLevelScanner Models S, M, MV, ML & MVL

Measuring range is from 19" below the threads on the process connection (upper dead zone). The 3DLevelScanner takes measurements from multiple points within the silo. These points are used to determine the volume of material in the bin. Measurement points are not simply averaged to calculate bin volume. Instead, an advanced algorithm assigns each point a "weight" to determine the true volume of material in the bin.



## RL Acoustic Level Device

Measuring range is from 19" below the threads on the process connection (upper dead zone). The RL measures the level of headroom from a single point on the material surface directly below where RL acoustic level device is mounted.



## SmartSonic Ultrasonic Transmitters

Measuring range is from 4" to 14" below the threads on the process connection (upper dead zone). Ultrasonic measures the level of headroom from a single point on the material surface directly below where the unit is aimed. For liquids it is generally pointed straight down (vertical), and for bulk solids it is aimed at the discharge to prevent the signal from bouncing off an angled hopper bottom causing false reflections.

***BINMASTER***