

# Delphi Electronically Scanning RADAR

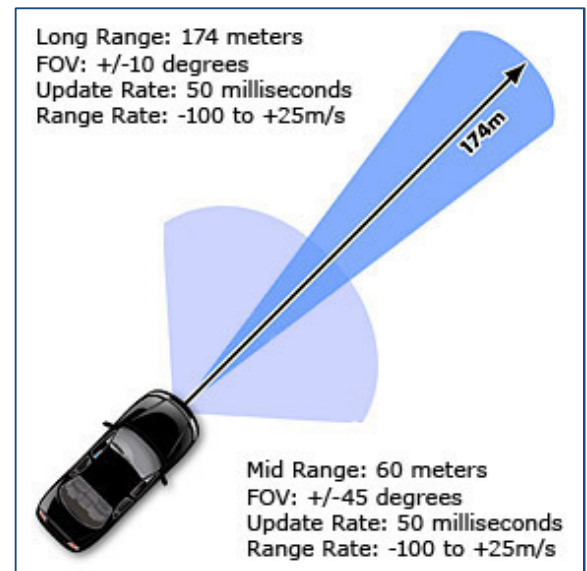
Delphi has applied more than 20 years of radar experience to develop its award-winning electronically scanning radar (ESR). Leveraging expertise gained from radar production that began in 1999, Delphi brought ESR to market at a price that is helping make radar-based safety and convenience systems more affordable in the automotive market.

Delphi's multimode ESR combines a wide field of view at mid-range with long-range coverage to provide two measurement modes simultaneously. While earlier forward looking radar systems used multiple beam radars with mechanical scanning or several fixed, overlapping beams to attain the view required for systems like adaptive cruise control, Delphi's multimode ESR provides wide coverage at mid range and high-resolution long-range coverage using a single radar. Wide, mid-range coverage not only allows vehicles cutting in from adjacent lanes to be detected but also identifies vehicles and pedestrians across the width of the equipped vehicle. Long-range coverage provides accurate range and speed data with powerful object discrimination that can identify up to 64 targets in the vehicle's path.

Delphi's technologically advanced ESR uses proven solid state technology plus class-leading performance, packaging and durability to offer customers game-changing forward radar detection. The quality of data provided by Delphi's system enables powerful functionality including adaptive cruise control, forward collision warning, brake support and headway alert.

## ► ESR enables the following features:

- Adaptive Cruise Control with Stop & Go
  - Enhances driver convenience
- Forward Collision Warning
  - Helps reduce the potential for an accident and injury
  - Helps reduce the potential for property damage
- Brake Support
  - Helps reduce the potential for an accident and injury
  - Helps reduce the potential for property damage
- Headway Alert
  - Provides distance information
  - Alerts driver when the preset time-gap to vehicle ahead is violated



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## ► The Delphi Advantage

- Multi-mode, multi-application capability
  - Simultaneous long- and mid-range functionality allows one radar to be used for multiple safety systems including adaptive cruise control, headway alert, collision warning and mitigation and brake support
- Solid-state Technology
  - No moving parts
  - Extremely reliable
- Class-leading performance and durability
  - Resistant to vibration and extremely robust
  - Innovative design provides excellent multi-target discrimination plus precise range, approach speed and angle data
  - Dual-mode classification enhances object reliability
  - Simultaneous Transmit and Receive Pulse Doppler (STAR PD) Waveform provides independent measurements of range and range-rate and superior detection of clustered stationary objects
- Compact packaging
  - Complete radar module, including electronics, measures just 173.7 x 90.2 x 49.2 millimeters including mounting features
  - Compact design makes it easier to locate the sensor on the vehicle without compromising vehicle styling
- High value
  - Produced using processes proven in high-volume manufacture of engine control units
  - Proven manufacturing processes increase affordability for high-volume automotive segments where radar systems have not previously been available



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