CASE STUDY:
PEM® TACKSERT® SOLUTION DELIVERS INNOVATION TO COMPANY A MULTI-CAMERA SYSTEM

On many new vehicle models, drivers have limited visibility of their immediate surroundings. Side and rear windows are smaller and vehicle exteriors are dictated by aerodynamics and pedestrian safety. This makes safe, precise maneuvering and parking quite challenging.

Automotive supplier Company A's multi-camera system helps drivers get a perfect view of a vehicle's environment. Mini cameras record surroundings and transmit images to an intelligent control unit which optimizes the images before displaying them on the vehicle's color screen.

CHALLENGE

- Facing increased production volume, a key goal for Company A was to reduce cost and assembly time to mount a PCB into an aluminium extruded housing
- Concern over PCB damage during installation (due to clamp load requirement)
- Non-removal of PCB required to reduce tampering risk
- Stringent technical requirements

TOTAL SOLUTION

- Replaced M2 screw and exceeded retention force requirement by 40% (250N vs. 150N)
- 50% reduction of installation time (3s vs. 1.5s)
- 30% reduction of keep-out space on PCB (4mm vs. 2.8mm)
- 60% reduction of head height (1.5mm vs. 0.6mm)
- Non-removal of PCB through permanent TackSert® fixation

RECOMMENDATIONS

Many application challenges can be met with the TackSert® solutions.

Company A intends to use the TackSert® fastener and a special spring contact to stop PCB move movement. PennEngineering will also support Company B on new camera production.

Key customers involved in ADAS: *Bosch, Denso, Continental, Magna, ZF, Aisin Seiki, Hyundai Mobis, Faurecia, Yazaki, Aptiv, Veoneer, Mitsubishi, Hella, Visteon, Nexteer, Infineon, Gentex, Samsung.*

> *"We use a thread forming screw in our current generation of cameras. The head diameter is 4mm by 1.5mm and screw length is 6mm. The size of the TackSert fastener was critical due to the reduction of our new camera size, clamp force requirements, cleanliness (thread forming screw required lubricant coating), and cycle time."*
>
> *— Company A*

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