



## Full TFT Color LCD Instrument Cluster Featuring Night View System with Pedestrian Detection Function

Providing drivers with more information than conventional instrument clusters and in an easy-to-read format

# Full TFT Color LCD Instrument Cluster

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DENSO developed the world's first full thin film transistor (TFT) color liquid crystal display (LCD) instrument cluster. It provides a wide range of information that can be viewed graphically in different display modes according to the driving situation and to meet the driver's preferences.

In addition to engine speed and fuel level information, DENSO's new instrument cluster provides a variety of useful information for greater driving safety and comfort. Its near-infrared-based Night View System, for instance, assists with night driving by clearly displaying pedestrians and obstacles in the road ahead. The System also highlights pedestrians to inform the driver of their presence.

In conjunction with a car navigation system, DENSO's new instrument cluster allows for many other functions, such as guidance assistance in driving lanes and at intersections.

DENSO continues to develop products to offer higher levels of safety and driving comfort.





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The full TFT-LCD instrument cluster displays a night view with detected pedestrians:

- Employs a 12.3-inch, full TFT-LCD display panel (the world's first).
- Displays a night view in conjunction with a pedestrian detection function (the world's first).

## ■ Main specifications

Panel size	12.3inches (291(w)mm X 109mm(H))
Resolution	1,280 X 480dots (0.228mm per pixel)
Brightness	200cd/m <sup>2</sup> (behind the smoked lens)
Response at low temperature	250ms at -30°C
Cooling system	Heat pipe and fins

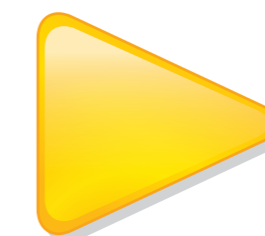
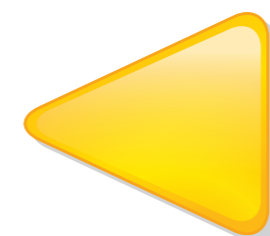
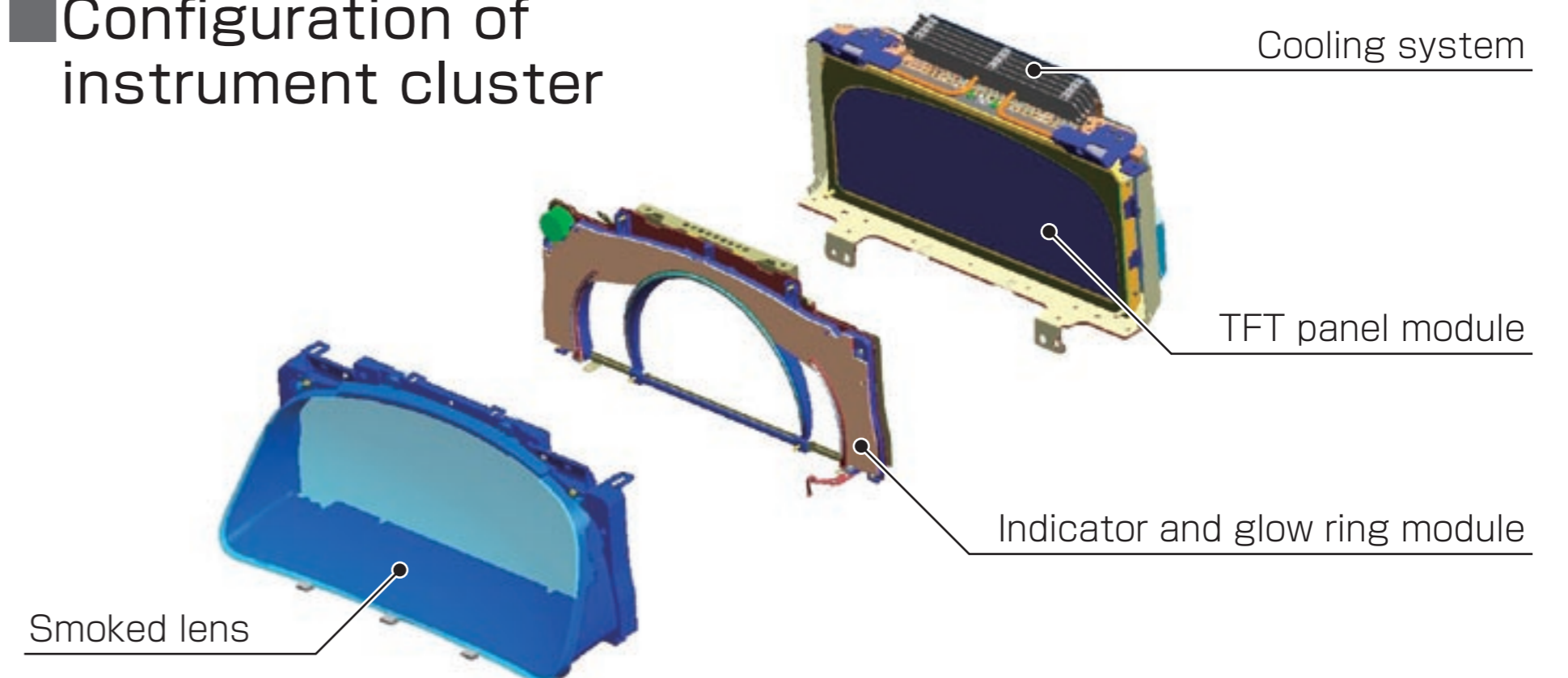
## ■ Appearance of instrument cluster



## ■ Display examples



## ■ Configuration of instrument cluster



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## ■ Display variations

1. Two display modes to meet the driver's needs:  
(Normal Mode, Night View Mode)



Normal Mode



Night View Mode

2. Driver assistance information in combination with a car navigation system:  
Displays traffic lane information, vehicle's direction of travel, distance to intersection ahead, etc. in an easy-to-read format at an easily viewable location.

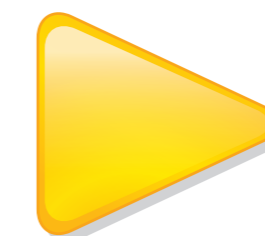
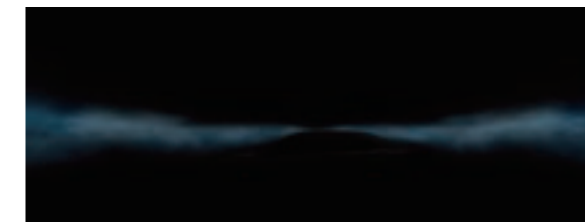
Navigation by an arrow



Traffic lane information

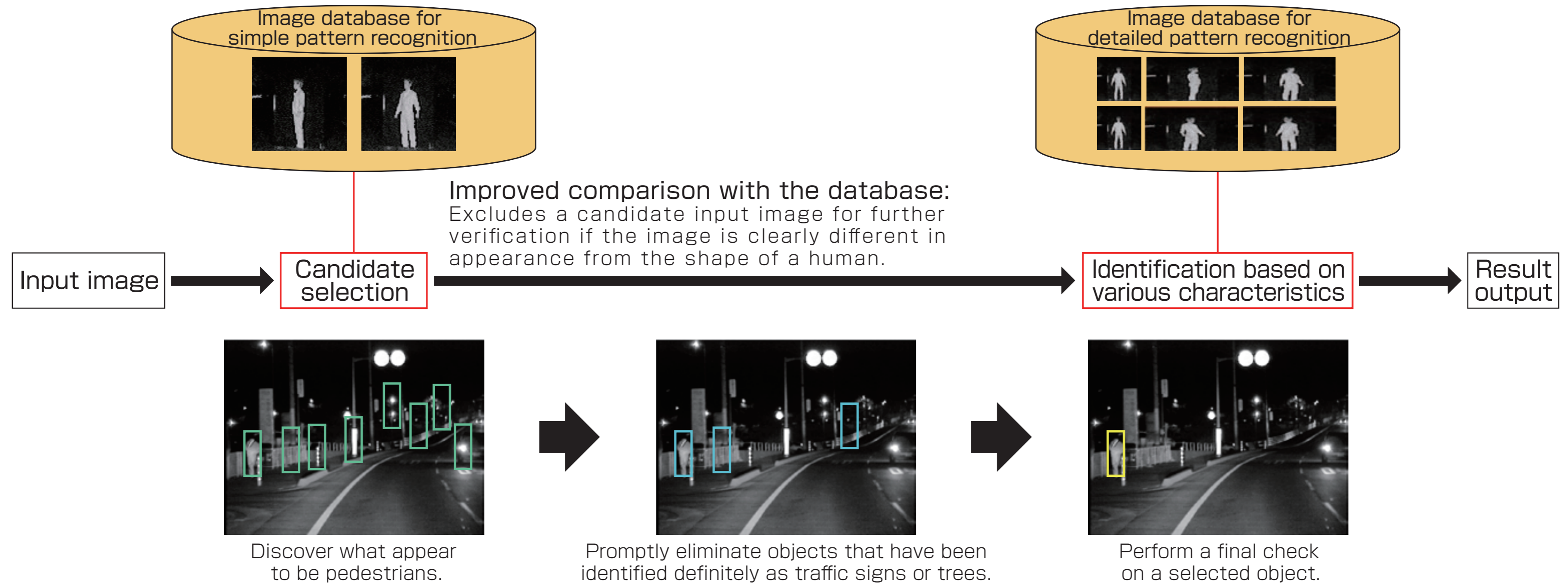
Distance to the intersection ahead

3. An animation plays when a door is opened or the engine is started:  
Take advantage of the TFT-LCD panel that displays high-resolution graphics to create a welcoming, innovative environment with a quality feel.



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## Algorithm of the pedestrian detection function





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## ■ Night View System with Pedestrian Detection Function:

Analyzes the shape characteristics of input images of objects detected on the road at night to see if they are pedestrians, and displays any objects identified as pedestrians by outlining the figures with a rectangular frame (pedestrian detection frame).

When pedestrians are detected, the Night View screen is also surrounded with a frame (attention-seeking frame) to urge the driver to take precautions.

Display example



System configuration

