

PolarView®

Electronic dimming filter for smart eyewear

Augmented reality glasses are wearable computers that add virtual information to the real world by displaying translucent content that can be viewed by the user, while at the same time allowing visibility of the surroundings.

One factor that determines how distinct this augmented world is visually perceived is the brightness of the ambient environment in comparison to the brightness of the near-eye display system. As lighting conditions changes, for example when the user goes from indoors to outdoors, the brightness ratio of the two worlds also changes, something that can result in significantly reduced legibility.

An attractive solution for overcoming this issue is to incorporate a dimming filter that controls the amount of ambient light reaching the eye and matches it to the display system. The innovative liquid crystal-based PolarView® filter offers analog dimming control, with the level of dimming being adjusted by an applied drive voltage.

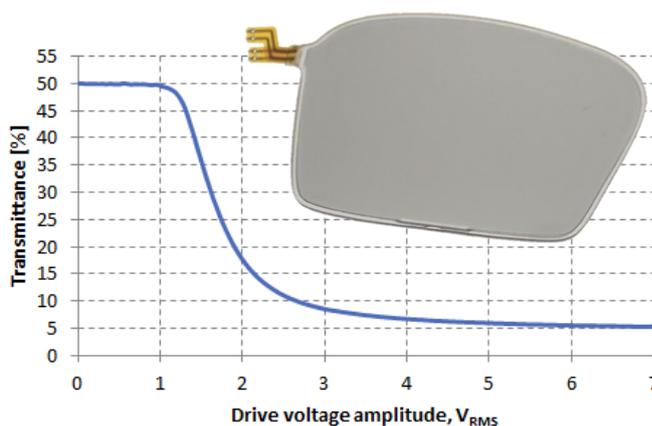
In addition to augmented reality glasses, the PolarView® filter can also be successfully used in other smart eyewear benefitting from electronic dimming control.

ADVANTAGES

- Fast switching
- Broad dimming range
- Continuously variable
- Wide field of view

APPLICATIONS

- Augmented reality
- Sunglasses
- Sports



PolarView®-ND(14)-F main characteristics (typical and preliminary)

Technology	Liquid crystal
Polarization dependent	No
Substrate material	Plastic
Curvature	Uniaxial down to 88mm radius
Open state transmittance*	50% @ 0V _{RMS}
Closed state transmittance*	8% @ 3.0V _{RMS} / 5% @ 7.0V _{RMS}
Number of gray levels	Infinite
Color	Neutral gray or custom colored
Switching times	140ms closing / 280ms opening
Power consumption	2 x 5mW @ closed state and 60Hz drive voltage frequency
Thickness	0.8mm
Weight	2 x 2g
Temperature range	-10°C to +60°C operational / -20°C to +70°C storage

*: Other open - closed state transmittance trade-offs are available, for example 70% open - 25% closed.