

Title (en)  
OPTICAL ELEMENT FOR VARIABLE TRAFFIC SIGNS

Title (de)  
OPTIKELEMENT FÜR WECHSELVERKEHRSZEICHEN

Title (fr)  
ELEMENT OPTIQUE POUR SIGNAUX ROUTIERS VARIABLES

Publication  
**EP 1593109 B1 20090408 (DE)**

Application  
**EP 03779554 A 20031223**

Priority  
• AT 0300385 W 20031223  
• AT 1512003 A 20030131

Abstract (en)  
[origin: WO2004068447A1] Disclosed is an optical element which can be used mostly in a randomly arranged plurality for representing symbols or graphic information on substantially vertical front faces of variable message signs. Said optical element comprises at least one triggerable light source (2), mostly an LED that can rest on a circuit board (1), a lens element (3) that is provided with a light-incident area (4), a surface area (6), an exit area (5), and preferably a housing (12) surrounding at least one portion of the surface area (6), light being emitted in an essentially horizontal to descending direction. The surface area (6) is provided with a maximally light-absorbing area (9) which directly borders the light incidence area (4) and the exit area (5) of the lens element (3). The length of the lens element (3) is greater than the diameter thereof. The curvature of the exit area (5) at each surface point is embodied such that substantially all light beams (10) emitted by the light source (2) are directed into an area located below a given angle S, preferably less than or equal to 10 DEG , relative to the horizontal line while essentially all light beams (11) incident from outside at an angle that is greater than or equal to S relative to the horizontal line are directed onto the absorption area (9).

IPC 8 full level  
**G09F 9/33** (2006.01); **F21S 8/00** (2006.01); **G08G 1/095** (2006.01); **G09F 13/04** (2006.01)

CPC (source: EP)  
**G09F 9/33** (2013.01); **G09F 13/0472** (2021.05); **F21W 2111/00** (2013.01); **G08G 1/095** (2013.01)

Cited by  
CN102770896A; DE102007038787B4; DE102012112070A1; DE102020115009A1; DE102007034123B4; DE102007033438B4; US11869358B2; DE102012112070B4; DE102020115009B4; WO2011117217A1; US9171488B2; EP2860719A1; EP3267427A1

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**WO 2004068447 A1 20040812**; AT 500013 A1 20051015; AT 500013 B1 20061015; AT E428162 T1 20090415; AU 2003287758 A1 20040823; DE 50311404 D1 20090520; EP 1593109 A1 20051109; EP 1593109 B1 20090408

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