

Title (en)
LED MODULE FOR SIGNALING DEVICES

Title (de)
LED-MODUL FÜR SIGNALEINRICHTUNGEN

Title (fr)
MODULE A DIODES ELECTROLUMINESCENTES POUR DISPOSITIFS DE SIGNALISATION

Publication
EP 1179219 A1 20020213 (DE)

Application
EP 00943604 A 20000515

Priority
• DE 0001537 W 20000515
• DE 19922361 A 19990514

Abstract (en)
[origin: DE19922361A1] The invention relates to an LED module having a regular array of LEDs (10), wherein each LED (10) is provided with a lens (20) and the LEDs (10) are mounted on a plate (1). An optics support plate (2) is provided that contains a regular arrangement of light bundling optical devices (20; 30) corresponding to the LED array. The light bundling optical devices can be lenses (20) or optical channels with reflecting side walls which are integrated into the optics support plate (2).

IPC 1-7
H01L 33/00; H01L 25/075; F21K 7/00; G08G 1/095

IPC 8 full level
B61L 5/18 (2006.01); **E01F 9/06** (2006.01); **E01F 9/08** (2006.01); **E01F 9/093** (2006.01); **E01F 9/559** (2016.01); **E01F 9/582** (2016.01); **E01F 9/594** (2016.01); **F21S 8/00** (2006.01); **F21V 5/04** (2006.01); **H01L 25/075** (2006.01); **H01L 33/00** (2010.01); **F21Y 115/10** (2016.01); **H01L 33/50** (2010.01); **H01L 33/58** (2010.01)

CPC (source: EP US)
B61L 5/1836 (2013.01 - EP US); **E01F 9/559** (2016.02 - EP); **E01F 9/582** (2016.02 - EP); **E01F 9/594** (2016.02 - EP); **F21V 5/007** (2013.01 - EP US); **F21V 5/04** (2013.01 - EP US); **B61L 2207/02** (2013.01 - EP); **F21W 2111/02** (2013.01 - EP); **F21W 2111/06** (2013.01 - EP); **F21Y 2115/10** (2016.07 - EP US)

Citation (search report)
See references of WO 0070687A1

Cited by
EP3182188A1; WO2010068127A1; EP3182190A1

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
DE 19922361 A1 20001130; **DE 19922361 C2 20030528**; CN 1193437 C 20050316; CN 1350704 A 20020522; EP 1179219 A1 20020213; EP 1179219 B1 20160511; WO 0070687 A1 20001123

DOCDB simple family (application)
DE 19922361 A 19990514; CN 00807500 A 20000515; DE 0001537 W 20000515; EP 00943604 A 20000515