

BISTABLE FERROELECTRIC LIQUID CRYSTAL CELL

ABSTRACT

Known liquid crystal cells have a nematic liquid crystal configuration and, in accordance with this configuration, are referred to as TN or STN cells. It is true that such cells are adequate for many applications. However, their image quality is dependent to a very great extent on the user's angle of view. Furthermore, TN and STN cells require a continuously applied signal voltage if it is intended to display or store information on one. Bistable liquid crystal cells having a ferroelectric, chiral smectic liquid crystal layer do not have these disadvantages of nematic display cells. However, the commercial production of such bistable display cells has scarcely become established to date. This is in particular because they are not very suitable for reliably storing information or do not permit absolutely equivalent switching between the two bistable positions of the director. The invention now proposes a novel, bistable liquid crystal cell which avoids precisely these disadvantages. Starting from the SBFLC display cell disclosed in EP-A 0 405 346, the display cell according to the invention is distinguished in that its liquid crystal layer (21) contains polymerized molecules and is formed, by treatment with light and an alternating electric field, in such a way that it has two equivalent, bistable switching states.

Figure 2