

surface from the deflecting unit and prevent reception of disturbing light, thereby achieving a high SIN ratio.

[0082] Furthermore, since the width of the deflecting unit is arranged to be the same as the scanning surface opening width of the optical scanning unit in scanning the diagonal section within the predetermined region, it is possible to eliminate an unnecessary light receiving surface from the deflecting unit and prevent reception of disturbing light, thereby achieving a high SIN ratio.

[0083] In addition, since the optical members are positioned to satisfy the above-mentioned condition (1), it is possible to certainly scan light within the predetermined region and surely receive the reflected light.

[0084] Besides, since the optical scanning unit is provided with a protective film giving the maximum reflectance at an angle of incidence corresponding to a scanning angle at which the quantity of the reflected light is minimum, it is possible to improve the light receiving signal level in scanning a position where the quantity of the reflected light is minimum, thereby achieving a high S/N ratio.

1. An optical scanning-type touch panel comprising: an optical scanning unit for angularly scanning light in a plane substantially parallel to a predetermined region; a deflecting unit for deflecting scanning light of said optical scanning unit; and a light receiving unit for receiving the deflected scanning light, for detecting a scanning light cut-off position, which is produced in said predetermined region by an indicator, based on a light receiving output of said light receiving unit that corresponds to a scanning angle, said optical scanning-type touch panel being characterized in that said deflecting unit has an asymmetrical shape about an optical axis.

2. The optical scanning-type touch panel as set forth in claim

wherein the shape of said deflecting unit is asymmetrical in a scanning direction.

3. The optical scanning-type touch panel as set forth in claim

wherein the shape of said deflecting unit is asymmetrical in a height direction.

4. The optical scanning-type touch panel as set forth in claim 3,

wherein a height of said deflecting unit is substantially equal to a height of said optical scanning unit.

5. The optical scanning-type touch panel as set forth in claim 4,

wherein said predetermined region has a rectangular shape, and a width of said deflecting unit is substantially equal to a scanning surface opening width of said optical scanning unit in scanning a diagonal section of said predetermined region with light.

6. An optical scanning-type touch panel comprising: an optical scanning unit for angularly scanning light in a plane substantially parallel to a predetermined region; a deflecting unit for deflecting scanning light of said optical scanning unit; and a light receiving unit for receiving the deflected scanning light, for detecting a scanning light cut-off position, which is produced in said predetermined region by an indicator, based on a light receiving output of said light receiving unit that corresponds to a scanning angle, said optical scanning-type touch panel being characterized by satisfying a condition

$$d/2+w < D \tan \delta$$

where D is a distance from said optical scanning unit to said deflecting unit, w is a width on said deflecting unit from a path of said scanning light to an end on said predetermined region side, d is a beam width of said scanning light, and δ is a scanning start angle.

7. An optical scanning-type touch panel comprising: a light retro-reflector provided outside a predetermined region; an optical scanning unit for angularly scanning light in a plane substantially parallel to said predetermined region; and a light receiving unit for receiving reflected light of scanning light of said optical scanning unit from said light retro-reflector, for detecting a scanning light cut-off position, which is produced in said predetermined region by an indicator, based on a light receiving output of said light receiving unit that corresponds to a scanning angle, said optical scanning-type touch panel being characterized in that said optical scanning unit is provided with a protective film having a maximum reflectance at an angle of incidence corresponding to a scanning angle at which a quantity of said reflected light is minimum.

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