

Claims

1. A total inner reflection (TIR) prism comprising two essentially triangular prisms separated by an optical coating or by a thin layer of air, wherein one of said two triangular prisms is shaped as an isosceles triangle.
2. A TIR prism as claimed in claim 1, wherein both essentially triangular prisms are made of the same material.
3. A TIR prism as claimed in claim 2, wherein the material is silicon.
4. A TIR prism as claimed in claim 1, wherein the optical coating is selected from among germanium, zinc sulfide, zinc sulfide cleartran, calcium fluoride, and magnesium fluoride.
5. A TIR prism as claimed in claim 1, wherein the TIR angle is of the order of 40°.
6. A TIR prism as claimed in claim one, wherein the thin layer of air has a thickness of between 0.1 and 0.3 mm.
7. An optical imaging system comprising a bi-axial mirror and a TIR prism as claimed in claim 1.
8. The optical imaging system of claim 7, comprising a scanning mirror positioned above the TIR prism.
9. The optical imaging system of claim 8, wherein light leaving the TIR prism reaches an optical lenses assembly from which it is transmitted to a sensor.
10. The optical imaging system of claim 9, comprising mirrors suitable to transmit light to and from the optical lenses assembly.
11. A system according to claim 7, which is adapted to simultaneously allow the passage of light of different wavelengths, selected from visible light, infrared light and laser.
12. The optical imaging system of claim 8, wherein the scanning mirror is essentially parallel to the ground wherefrom an image is to be acquired.

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13. The optical imaging system of claim 12, wherein the scanning mirror has an angle of up to 20° from the scanning object, and wherein any distortion resulting from said angle is corrected using image processing means.
14. The optical imaging system of claim 12, further comprising image processing apparatus suitable to correct a distortion in the acquired image resulted from an angle of the scanning mirror.