CLAIMS

1. A boresighting device to equip a turret (**1**) provided with a barrel (**4**) and one or several sight system(s) each with an optical system (**10**), said device comprising:

- a deflection target (**3**) intended to be positioned outside the barrel (**4**), at the muzzle brake (**6**) of said barrel (**4**),

- a housing (**2**) intended to be positioned outside the barrel (**4**), at the shaft (**5**) of said barrel (**4**), said housing (**2**) including:

- a first optics system (**7**) provided with a deflection camera, said first optics system (**7**) being used to determine a parallelism error between a firing line from the shaft (**5**) and that from the muzzle brake (**6**),

- a second optics system (**8**) provided with a boresighting camera, said second optics system (**8**) being used to determine a parallelism error between the firing line from the shaft (**5**) and an optics line from the sight system(s), the device being characterized in that the deflection target (**3**) is devoid of mirror and integrates a geometric figure (**9**) serving as a reference point for the first optics system (**7**);

wherein the method of using the device comprises the following step:

- Calculating the displacement ΔX and ΔY of the geometric figure (**9**) relative to a reference position of said geometric figure (**9**), said calculation being done based on image processing from the deflection camera, the parallelism error between the firing line from the shaft (**5**) and that from the muzzle brake (**6**) next being determined via a mathematical model based on calculated ΔX and ΔY values,

- Comparing an image taken by the boresighting camera with an image taken by an optical system (**10**) of the sight system(s) in order to determine the parallelism error between the firing line from the shaft (**5**) and the optics line from the sight system(s),

- Accumulation of two parallelism errors and displacement of said optics line accordingly.

2. The device according to claim 1, wherein each camera has fixed focusing, the boresighting camera having infinity focusing and the deflection camera being configured to have focusing adjusted on the deflection target (**3**).

3. The device according to claim 1 or 2, wherein the geometric figure (**9**) is a circle.

4. A weapons system comprising the boresighting device according to any one of claims 1 to 3, wherein said housing (**2**) is positioned on the shaft (**5**) of the barrel (**4**) and said deflection target (**3**) is positioned near or on the perimeter of the muzzle brake (**6**) of the barrel (**4**).

5. The weapons system according to claim 4, wherein the deflection target (**3**) is attached or integrated with respect to the muzzle brake (**6**).

6. An armored vehicle provided with the weapons system according to claim 4 or 5.

7. The device using the method according to claim 1, wherein the calculation of ΔX and ΔY is done using an algorithm based on a contour detection according to the Canny method and using a Hough transform.

8. The device using the method according to claim 1 or 7, wherein the reference position of the geometric figure (**9**) is calculated during a calibration following an installation of the boresighting device on a weapons system.

9. The device using the method according to claim 8, wherein the calibration is done using a muzzle bezel, said calibration comprising a step for aligning a position of a crosshairs of the boresighting camera with a point observed through the muzzle bezel.

10. The device using the method according to any one of claims 1 or 7 to 9, wherein, after the step for calculating the parallelism error between the firing line from the shaft and that from the muzzle brake, the crosshairs of the boresighting camera is moved by a same angle along the X and Y coordinates.

11. The device using the method according to any one of claims 1 or 7 to 10, able to be implemented mid-mission.

12. A computer program suitable for implementing the method according to any one of claims 1 or 7 to 11.

13. A means for recording data readable by a computer comprising the program according to claim 12.