CLAIMS

1. A self-powered device for measuring an effective rate of fire for any type of weapon barrel, comprising:

a) a thermoelectric generator converting thermal energy from a difference in temperature between said barrel and an ambient temperature into electrical energy;

b) a system suitable for determining the temperature of the barrel;

c) a system for processing and for recording said temperature measurements;

d) characterized in that the system for determining the temperature and the system for processing and for recording the measurements are supplied with power by the thermoelectric generator and in that, in use, the effective rate of fire is determined on the basis of the temperature of the barrel over time wherein the thermoelectric generator is a Seebeck cell generating electricity based on the difference in temperature between the surrounding air and the barrel and wherein the device comprises a radiator element on a cold-face side of the Seebeck cell.

2. The device as claimed in claim 1, wherein the system suitable for determining the temperature of the barrel is a system that measures a voltage generated by the Seebeck cell and to estimate the temperature on the basis of this voltage.

3. The device as claimed in one of the preceding claims, wherein the system suitable for determining the temperature of the barrel comprises a temperature probe that is supplied with power by the thermoelectric generator.

4. The device as claimed in one of the preceding claims, wherein the system suitable for determining the temperature of the barrel comprises an optical probe or a resistive probe.

5. The device as claimed in one of the preceding claims, wherein thermal insulation is included between the barrel and electronics of the device so as to protect said electronics from the heat from the barrel of the weapon.

6. The device as claimed in one of the preceding claims, wherein the recording system is an internal memory that is able to be read by an external reader system.

7. The device as claimed in claim 6, wherein the external reader system is supplied with power by radiofrequency induction, such as an RFID module.

8. A barrel comprising a device as claimed in one of the preceding claims.

9. A method for measuring an effective rate of fire for a barrel of a weapon, comprising the following steps:

i. recovering thermal energy from the heat from the barrel;

ii. transforming, using a thermoelectric generator, said thermal energy from a difference in temperature between said barrel and an ambient temperature into electrical energy;

iii. using said electrical energy to supply power to a system suitable for determining the temperature of the barrel and to a system for processing and for recording the measurements;

iv. determining the effective rate of fire using the temperature of the barrel recorded over time,

wherein the thermoelectric generator is a Seebeck cell generating electricity based on the difference in temperature between the surrounding air and the barrel, and

wherein a radiator element is provided on a cold-face side of the Seebeck cell.

10. The method as claimed in claim 9, wherein the method for measuring the effective rate of fire comprises an additional step of the recorded temperature measurements being read by an external reader system.

11. The method as claimed in claim 10, wherein the external reader system is a contactless reader system.

12. The method as claimed in claim 11, wherein the external reader system is an RFID reader system.